

eLECTRIC WoRD

THE WORLD'S LEAST BORING COMPUTER MAGAZINE

Special focus:

CYBERSPACE

IS ISDN NECESSARY?

ALTERNATIVE NETWORKS

BRITISH LIBRARY ONLINE

COMPUTER CRIME

HYPERTEXT BACKGROUNDER

THE GUINNESS DISK OF RECORDS

The scourge of techno-culture

ALAIN FINKIELKRAUT

We review his new book.

FOCUS



MacUsers AWARD the Focus Scanner
as the best new input device of 1988



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BELGIUM

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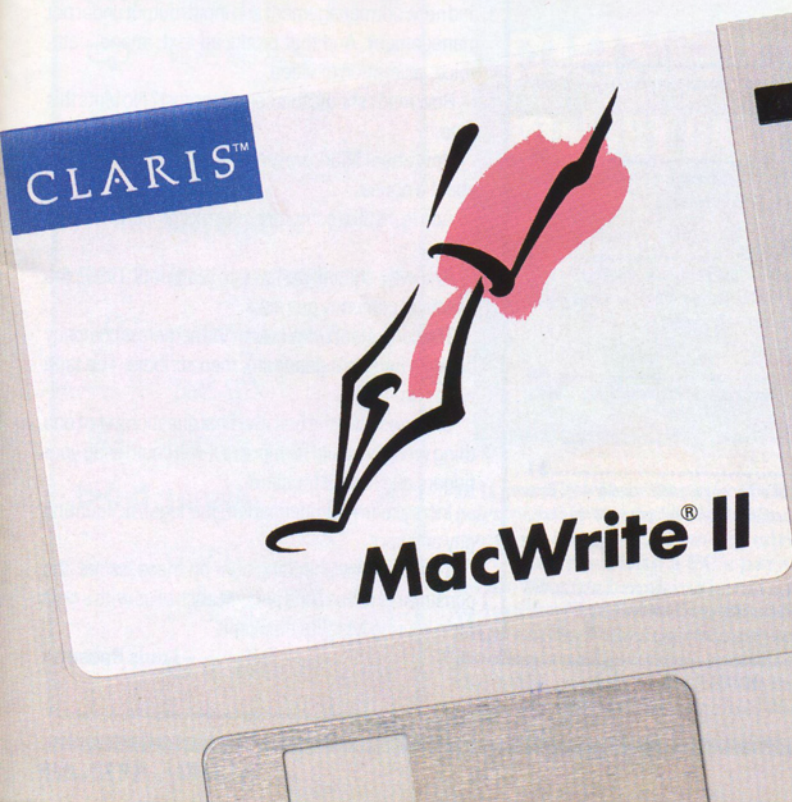
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*Of course, all MacWrite II programs come with their native language dictionary. With one exception: Greek MacWrite II comes with a British English dictionary only.

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The Technology of Electric Word: This issue was written on Mac+ 's, SEs, SE 30s, II and IIsx, using Word 4.0 and WriteNow wordprocessing, and on clones using WordPerfect 5.0. Electric Word was laid-out on Mac IIs with Radius A4 color and grayscale screens, using PageMaker 3.5. Designs were created with Illustrator and Freehand. Scans were done on an Agfa Focus with MacScan software, proofs on an Apple Laserwriter II NTX. Text was output on a Linotronic 100. Headline fonts: Bold, Font designed by Max Kisman and produced by Bert Hendriks on Fontographer. Linotron: Niek van Dijk, Amsterdam. Printing: Den Ouden, Amsterdam.

Cover photo: Antoine LeGrand

The focus group is being run for a big office automation company which shall remain nameless. We are eleven. Two marketing bigwigs from the nameless automation company are there to observe. Two smart consultants are there to ask the questions. The people who sign the releases to use their words and images come from: a small but technologically advanced publishing company (me); a legal and accounting information supplier; a large multinational petrochemical company's research lab; an international bank; a major European oil company; a documentation and engineering consultancy; a multinational drug company; a design consultancy.

What the signees have in common: we are responsible for electronic publishing at our companies. And quite a responsibility it is for some of us. Take the case of the legal/accounting supplier: it produces 350 products a year, which include textbooks, magazines and looseleaf resources. They have 5,000 employees with 2,000 PCs, a Vax network, Ethernet and 18 Intertypes running three shifts, among other things. The other participants are operating on the same level.

We are asked a lot of questions about our experience with electronic publishing. Universal problems: too many incompatible formats and systems, not enough commonality. Too much paper—when will on-demand documentation become a reality? Lack of good document management systems—not just ones that produce lots of paper, but that allow you to find what you are looking for. Good authoring systems are also lacking. Staffing—finding capable DTP and electronic publishing professionals is a drag.

The consultants scribble. The tape winds on.

We are shown concepts on the overhead for office products of the future. How about a 1999 workstation device that is a mail/messaging center, that can accept voice, different document formats, and forms input, that has image enhancement, pattern recognition and autofiling, that is simultaneously a scanner, copier and fax, that can handle document/job control, and has ICR/OCR, and that outputs raster compress, raster vector and raster object. This same device has electronic page memory that can store 1,000 pages, can do distributed printing and electronic document delivery, and has an output engine with 180 to 3,000 dpi resolution, from 1 to 4 color.

How much would you expect to pay for this device? we are asked. Fifty thousand dollars? Sixty—

How about \$5,000, we respond.

And why should we have to wait until 1999? the chemical company guy asks.

The consultants look up, then scribble. The tape winds on.

Next slide: how about the 1999 desktop computer? With video and digitized imaging input, a 72-600 dpi 32-bit color screen, NTSC, PAL, Raster, Vector Object and HDTV monitor capability. With a parallel, array and multi-processor mode CPU, with 128 megabytes of memory that can handle cable TV, ISDN, telecoms, voice, scanner and data format input, that uses a display model like Postscript, and that can do internal, external format transforms. That was equipped with magnetic, optical or other memory devices, telecom and network management and input/output under net management. And that produced text, image, data, voice, animation or video.

How much should this computer cost? No hints this time.

How about \$600, we respond. And it should weigh about a pound.

And is it still a computer? the oil company woman asks.

And why should we have to wait until 1999? the chemical company guy asks.

The consultants look over at the nameless company bigwigs (who are deadpan), then scribble. The tape winds on.

Six hours after the first, the final question: what one thing would you like to improve if you could snap your fingers and have it happen?

Increase my compensation, the legal/accounting guy answers.

Thank you for shedding light on these issues, the consultants tell us. And present each of us with a neat little keyring Maglite flashlight.

— Louis Rossetto

LANGUAGE TECHNOLOGY 3

News You Can Use. LinguaFranca for multilingual wordworkers. Views and Abuse from readers. And this issue's Stars: Muriel Vasconcellos, an everyday story of one woman's rise from typist to team leader; Zen and the Art of Onscreen Editing with Charles Bigelow; and Ged Pearson, Microlytics' man on the move.

SPECIAL FOCUS: WORDWORKING ONLINE

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With a PC, a modem, and a phone line, there's a whole world of information out there. As new imagination-stretching technologies bear fruit, an electronic "global consciousness" will soon be possible—only don't bank on the phone company to give it to you on a plate.

WILL THE BRITISH LIBRARY PAY ITS WAY? 22

If Marx were alive today, instead of freezing his bum off in the British Library, he'd be doing a "search: workers, exploitation" down the phone from Engels's Hampstead flat, reports Richard Evans.

ISDN: INTEGRATED SERVICES DIGITAL NETWORKS 28

The Martini of information transmission ("any time, any place, any where")? Or an Innovation Subscribers Don't Need? Brock Meeks reports.

TURN ON, DIAL UP, TUNE IN 33

Steve Rosenthal finds high-quality content and intelligent interaction on The Well, the FM radio of online services.

SABOTAGE: PLAYING FOR KEEPS 38

An intercontinental online war is being waged nightly in Cyberspace. Stakes can be high and motives can be sinister, writes Brock Meeks. It's a venal planet, kid.

A RECORD BREAKING MULTIMEDIA CD-ROM 42

On a jolly jaunt to London town, Jules Marshall finds out how Pergamon is making the most and best of CD-ROM, now the medium's chicken-egg conundrum has been licked. Meanwhile, back at the Electric Workhouse, Geoff Pogson surveys the Big Picture.

HYPERTEXT OR HYPERBOLE? 46

Pat Baird describes the hopes and fears for non-linear access to information and looks at three hypertext products currently on the market.

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Product Reviews. Book Reviews. Dr. Write Stuff (s/he of the winning deskside manner). Zines Seen (what the mainstream press has to offer). Plus Cyberlex, the Calendar, and the Classics.

WORDWORKER: BOB OGLEY 68

When the fiercest storm for centuries turned the leafy English town of Sevenoaks into "Oneoak," local boy-turned local editor was there to chronicle it.

Language Technology

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APPLE/ADOBE/MICROSOFT: NO FONT MEMORIES

In a bold attempt to maneuver Adobe out of the personal computer mainstream, Apple CEO John Sculley and Microsoft's Bill Gates announced a surprising agreement at September's Seybold Computer Publishing Conference.

The two companies are to cross-license each other's technologies. Microsoft will get to integrate System 7's outline font technology into OS/2's Presentation Manager and possibly Windows. In return, Apple will get to use Microsoft's PostScript-compatible printer driver for implementation in future models of the LaserWriter.

"Outline fonts" are mathematical formulas describing the shapes of characters. Using these formulas, a computer can generate a bitmap representation of characters in any size, thereby making use of the highest possible resolution of a given output device.

"Scalable font technology is an essential part of the the rich graphic environment that will characterize computing in the 1990s," foresees dtp expert Jonathan Seybold. The use of outline fonts for the generation of text, both onscreen and via the printer, is important because a truly accurate WYSIWYG graphic user interface can only be attained if the screen and

the printer use the same imaging system.

Currently, Adobe's PostScript Page Description Language (PDL) is the standard of choice for driving phototypesetters and laserprinters. However, screen representation is usually the responsibility of an internal system (QuickDraw, for example, in the Mac) in which outline fonts are simply not used.

The agreement between Apple and Microsoft is a blow for Adobe, which was trying to establish an imaging standard with Display PostScript.

When NeXT president Steve Jobs was leader of the Macintosh development team, he was the one who convinced Apple to purchase a minority share in Adobe and use PostScript in the Apple LaserWriter. This decision resulted in the desktop publishing revolution in which both Apple and Adobe flourished.

Since then, PostScript has become an industry standard, due in part to the fact that it is device-independent and available on a broad range of equipment from various suppliers.

Times change, however. Apple has since sold its 16.4% share in Adobe and developed a PostScript-compatible interpreter for its laserprinters. And for its new sys-

tem software, it has developed its own outline font format under the codename Royal Font Format. All this not to improve upon PostScript, but simply to evade paying the princely royalties Adobe receives for each PostScript printer that goes over the counter.

Should the wordcrunching, dtp and typesetting industries be happy with a new "standard," basically another PostScript-clone which doesn't add functionality? Are there guarantees that this new standard will be accepted? The strategic deal between Apple and Microsoft would seem to answer the second question. IBM has always been influential in the establishment of new standards, and this computer behemoth has already confirmed that it will be implementing the Apple/Microsoft technology in its own versions of OS/2 and Presentation Manager.

Another important factor is that the new system is claimed to be PostScript-compatible, meaning users can continue using existing programs. Whether this turns out to be so in practice won't be evident until the second quarter of 1990, when Apple's new system software, System 7, and a new version of OS/2 are expected to appear.

On the other hand, Display PostScript has been licensed by DEC and IBM for mainframe implementations. It is also responsible for handling screen output on the new Cube computer from NeXT.

And in another surprising move, IBM

FAXES

Users of Gamma-Link's PostScript page-description language can now produce presentation-quality faxes with the aid of GammaScript - an interpreter licensed from QMS.

The fancier version, GammaScript Plus, is compatible with all 35 type-faces of the Apple LaserWriter NT. The less powerful version covers 13 typefaces.

The program consumes 1 Mb of RAM and 4 Mb of harddisk memory on an AT equipped with GammaLink's PC-to-fax boards. It converts the PostScript application into a fax-format file, comparable in its output to a 200-dpi PostScript printer.

GammaLink, 2452 Embarcadero Way, Palo Alto, CA 94303, USA. +1 (415) 856-7421

ALCATEL GOES INTERLEAF

Alcatel, the communications systems manufacturer, has selected Interleaf electronic publishing software for its facilities in 22 countries. Interleaf's documentation software will be used primarily in CASE (Computer-Aided Software Engineering) and CAE (Computer-Aided Engineering) environments.

FLEX THAT BRAIN

Ocean Isle Software (Maraathon, FL) doesn't want you to go soft in the head. So it has developed Neurobics - a set of six logical puzzles to test and possibly improve the user's short-term memory.

Players harden their cortical tissue with the help of pattern recognition

CARDS (PART 1): MAG MEMORY



Is it possible that the age of the floppy disc is drawing to an end? Some, particularly those in the memory-card business, are doing their best to make us think so. Memory cards are small and easy to store and transport, they plug into a PC's parallel ports, store bundles of data, and have no moving (or breaking) parts. ROM cards (non-erasable) are well-suited to holding applications programs, but the future is really in erasable RAM cards. Existing memory cards hold eight to ten kilobytes. Maxell's memory-card products retail at US\$114 for the 128 Kb card, US\$1,344 for the 1 Mb model, and US\$300 for the card readers.

Maxell Corp., Moonachie, NJ 09707, USA. Tel: +1 (201) 641-8600.

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exercises, simple multi-step algebra, and transitional analysis logic. Difficulty levels are adjustable to avoid unnecessary embarrassment (and possible brain strain?).

Neurobics (US\$44.95) is the result of author Ratko Tomic's interest in neural networks and is partially based on Alan Baddeley's book *Working Memory*. For all you self-improvers: Neurobics can keep time score and graph your progress.

COMPU-PERVS LOOK OUT!

Software and arcade-game pornographers: shame on you! You now have to contend with OASIS (Organization Against Sexism In Software), which targets sexism in the computer industry.

The London-based organization hopes to act as a forum for the debate on the trade-off between offensive material and censorship. So far, there has been considerable interest in the organization in America and Australia.

OASIS's membership currently numbers around 150, of whom 37% are male and 16% businesses and educational establishments.

Sandra Vogel, OASIS, 3 Alden Court, Stanley Road, London, SW19 8RD, UK

THE MAIN EVENT (PIC)

A British company has developed a computer link-up device that uses the mains electrical power circuits to transmit data from computers to peripherals. The US\$280 cable-free DataLink (you need two to start) converts outgoing data into packets of security-coded FM signals and sends them along the electric grid a distance of up to 100 meters at 800



chose to licence NeXT's NextStep for the graphic interface for its UNIX-based workstations. NextStep does PostScript all the way, using PostScript for both display as well as printer control.

"PostScript is an industry-wide standard, accepted by a broad range of manufacturers" points out Cheryl Rhodes, copublisher of the Bové-Rhodes Report. Regarding past criticism of the performance of Display PostScript, she says, "Each time a new version comes out, each time a new controller is released, performance increases by ten- or twelvefold." She adds that it's certainly easier to optimize an existing system than to start from scratch.

With the huge investment in installed PostScript equipment, PostScript is therefore not likely to disappear without a trace. In fact, if its presence is firmly established in the looming workstation market (which is growing faster than the PC market as

a whole), this may bring even bigger returns to Adobe in the long run.

In the meantime, we can expect some fireworks from Adobe, which is unlikely to sit back and watch the PostScript standard being dismantled and will perhaps take legal steps against PostScript clones. The company may even publish its hitherto closely-guarded proprietary algorithms in an attempt to entrench PostScript as the standard page-layout and display system for computers.

Microsoft and HP making font plans. Microsoft will also be collaborating with Hewlett-Packard to develop an OS/2 Presentation Manager device driver for Intellifont, HP's font-scaling technology incorporated within its PCL printer language.

This strategic move will provide accurate screen representation of the fonts used

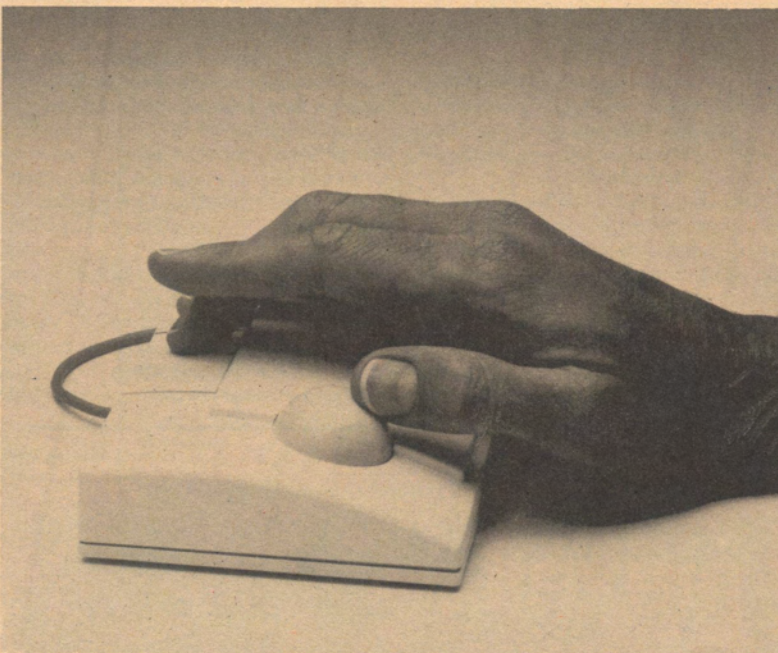
in HP's extremely popular LaserJet printer line. If a user installs this printer driver in PM, the fonts available with the printer will automatically be scaled and displayed as required.

And Altsys with a font converter. Hot on the trail of Apple's announcement of its new outline font technology is font-whiz Altsys, with a program to convert PostScript fonts into editable outlines.

This Texas-based company claims its program, called Metamorphosis, "will ensure that users' huge investments in PostScript font libraries will be fully usable with the new system's outline fonts."

Metamorphosis allows outline fonts to be edited, giving users the opportunity to manipulate type outlines in drawing programs.

Altsys, 720 Ave. F., Suite 109, Plano TX 75074. Tel: +1 (214) 424-4888



IS IT A TRACKBALL? IS IT A MOUSE?

No, it's TrackMan, a stationary mouse input device developed by Logitech for use with laptops and other machines in confined environments.

A cross between a trackball and a mouse, TrackMan consists of a thumb-driven trackball and three selection buttons - all mounted on a 3x4-inch stationary pad. The device is opto-mechanical - a pair of light-emitting diodes, on either side of the mechanical trackball, track its motion and provide coordinated data to the screen cursor.

TrackMan works with PCs, XTs, ATs, PS/2s and compatibles. It retails at US\$139 for the serial version and US\$149 for the bus version. The default resolution is 300 pixels per inch (one inch rotation moves the cursor 300 pixels).

Logitech Corp., 6505 Kaiser Drive, Fremont, CA 94555, USA. Tel: +1 (415) 795-8500

LET YOUR FINGERS DO THE TALKING

In the UK, British Telecom and the University of Essex have developed a method of sending cartoon-like moving video pictures down existing analog phone lines.

The hardware is still in prototype, but the first application will be a system to allow the 50,000 people in the UK who rely on sign language to communicate over the phone with machines the price of a video recorder.

One profoundly deaf couple in the east of England have been using such a phone to keep in touch with the local Deaf Association group.

The phone sends moving sign language pictures with enough clarity to allow callers to be made out. Researchers adapted a videophone that was designed to transmit moving color pictures along ISDN lines.

The videophone has a six cm screen with 64 horizontal lines, each line made of 64 pixels (points). For smooth motion, the videophone must transmit ten full pictures per second, i.e. 40,000 pixels per second (pps). But noise on analog lines can reduce the maximum achievable transmission rate to under 10,000 pps.

The BT-adapted videophone cuts corners by taking advantage of the fact that some parts of a picture, such as the corners, seldom move, so there is no need to transmit them as frequently.

By concentrating on hand and facial gestures, the system reduces the number of bits needed to transmit a picture by a quarter. If there is so much movement in the picture that the system can't reduce the image to 9600 pps, it automatically drops the picture-sending rate to eight or even six times a second. That way even loudmouths can be "heard," albeit jerkily.



BACK TO HANDWRITING - AGAIN

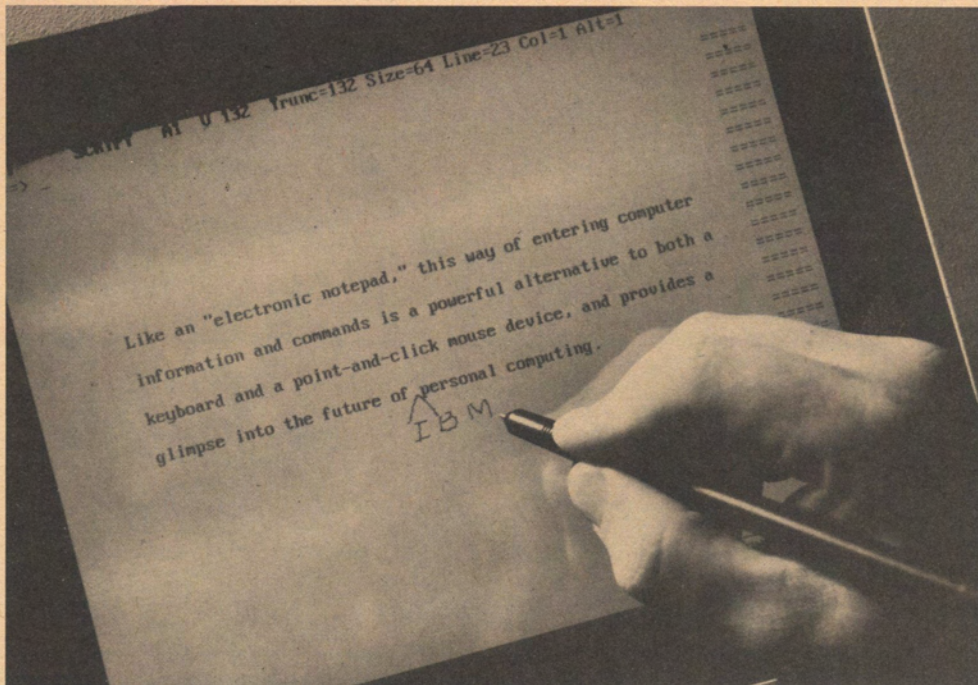
This could be an input revolution. IBM is exploring a way to use computers by which users write using a stylus on a flat tablet-like surface, much like using pen and paper. Dubbed the Paperlike Interface, the product would allow the computer to be controlled more naturally and conveniently than with a keyboard or a mouse.

Still very much at the drawing-board stage, the handwriting-recognition software developed by IBM's Watson Research Center (Yorktown Heights, NY) instantly digitizes writing and other hand-drawn marks, such as lines, proofreader's marks, mathematical symbols and musical notes, into onscreen words, numbers, graphics and commands.

It's a bit like Linus Technologies' Write-top (EW#9), "but much faster and more versatile," says IBM's Gerry Present. The computer recognizes human handwriting in real time with almost human accuracy. The IBM tablet could be used on a laptop, or even handheld.

"Writing or drawing on the Paperlike Interface performs the same functions as pressing keys on a keyboard or moving a mouse, but it's more intuitive to use, requiring less effort and fewer actions," says Present. "An electronic document can be edited or proofread, for example, by writing on the display directly over the text that requires change. The changes will be executed then and there."

The Paperlike Interface need not only be used in wp programs. It can also be used to manipulate spreadsheets (draw a line



through a column of numbers, or a circle around them, to define them, and then make a +, -, x or / symbol to get your sum).

Another interesting future application, says Present, would be to couple the interface with speech recognition: you could dictate a letter, then edit it by hand. It could also be used for composing music: write

A # to get a quarter note.

But don't rush to the shops: "It's still very much research," says Present. "We don't know when it's coming out."

IBM Corp, Research Division, Box 218, Yorktown Hts., NY 10598. Tel: +1 (914) 945-3884.

characters per second. Transmission of an A4 page takes about three seconds.

Verran Electronics Ltd, Cedarwood, Chineham Business Park, Basingstoke, Hants. RG24 0WD, UK. Tel: +44 (256) 816 555

CLEAREST "YES" YET FROM TEACHERS ON SILICON SCHOOLING

In the latest episode of the IBM-Apple battle for hearts, minds and brand loyalty in the classroom, an IBM-sponsored study has shown that teachers are much keener on PCs than previously thought, while Apple has stepped up discounts and offered free training for teachers.

Two thirds of US teachers say that the use of computers should be drastically increased, according to the results of "the most extensive study ever done of teacher attitudes about computers in the classroom." IBM's report contrasts with the response from teachers at the recent National Educational Computing Conference, where the effectiveness of computers was questioned.

According to the report, *Computer Report Card: How Teachers Grade Computers in the Classroom*:

- 82% of the 1,100 teachers polled said the use of computer-based reading and writing programs could improve the US illiteracy problem and that computers should be introduced to schoolchildren as early as the age of five.

- 85% said that computers have already had a positive effect on the quality of

education received by students.

- 74% said that computer-illiterate students would not be adequately prepared for college.

More than half of the teachers polled said that students were better with computers than they themselves were, and 60% felt inadequately trained.

This deficiency has also been spotted by Apple, which recently announced increased volume discounts to schools and teachers wanting to do school-related work at home, plus at least 12 free hours training for any teacher participating in the Educator Advantage Group Purchase Program.

Whatever operating system they eventually choose, a large majority of teachers said that the US government should fund the expansion of computing in the classroom.

According to IBM, the average college graduate has spent 20,000 hours watching the TV and 12,000 hours in the classroom. "Computers give teachers the resources to compete for students' attention - and win," said James Dezell, vice president of IBM Educational Systems.

Apple and IBM will both remain forbidden fruit for the children of the Exclusive Brethren, an austere UK-based Protestant sect which believes computers to be "a scientific imitation which rivals what God has put into living persons, making man increasingly independent of God and leading to infidelity." See Revelations 13, verse 13, for a more authoritative guideline.

More than 1,400 members of the sect are pressing for a meeting with the UK Education Secretary to demand that the 1988 Education Reform Act be amended to allow their children to be exempt from being taught about "the handtool of the devil" in school.

A letter from a North London member of the Brethren said: "We have come to the deep conviction that the tremendous build-up in computers and communications will give the man of sin, energized by the full power of Satan, totalitarian control over the whole Western world."

Given some of the characters Electric Word comes across in this business, the Brethren may have a good point.

NEIGHBORHOOD CYBERWATCH

Big Brother is adjusting fast to the electronic age. San Bernardino (CA) deputy sheriff Mark Finley has started Whistle Blower, an electronic bulletin board to collect anonymous tips from concerned citizens - direct from computer to computer. Keyboard crimebusters: send your white collar crime tidbits to +1 (714) 873-9547.

PERSONAL PROXIES

News for novice Mac desktop publishers: Silicon Beach Software (San Diego, CA), has developed a page layout program that might soften the bumps along the road to a

decent-looking document.

At US\$299, Personal Press offers the user Auto-Create page-assembly features (text and graphics) and "proxies" display technology. Many dialog boxes come alive with a graphical proxy that lets the user know what is going to happen before s/he hits the "OK" button.

THERE'LL ALWAYS BE A WORDSTAR

WordStar, the first competent word-processor and older than the PC, simply refuses to fade away. Version 5.5 (US\$495) of the old word-workhorse offers the user visual aids such as expanded menus, a bitmapped page preview, and a long-awaited stylesheet.

WordStar Int'l,
33 San Pablo Ave.,
San Rafael, CA
94903, USA

BOOSTED HOTSHOT

HotShot Graphics, a picture processor for desktop publishers, has been boosted by full-page editing capabilities and conversion utilities to file formats WPG, MacPaint, and MS Windows Paint. The new version (1.5) is also capable of exporting text and graphic images to Word 5.0 and WordPerfect 5.0. Price: US\$249.

Symsoft, 444
First Street, Los
Altos, CA 94022,
USA. Tel: +1 (415)
941-1552

A WORD FOR PAGEMAKER

Version 3.5 of Aldus PageMaker for the Mac supports more file formats including Word 4.0 and Works 2.0. 3.5 also includes additional color capabilities, a collection of business templates, and enhanced text editing features.

Aldus Corp., 411
First Street South,
Seattle, WA 98104,
USA. Tel: +1 (206)
622-5500



WORDPERFECT 5.1: SOON ON A PC NEAR YOU

No, the story didn't end with the birth of WP5. The epic saga about the word processor that conquered the world continues. In the latest sequel, 5 has a child...

As Electric Word was going to press, WordPerfect's Pete Peterson used CompuServe to lift the wraps off forthcoming WordPerfect 5.1.

Discussing this latest version of the world's most popular DOS word processing program, Peterson claimed: "5.1, while not as dramatic a change as 5.0, is not a minor release." Detailing its "many new and improved features," he boasted the challenge had been "to make one powerful, easy-to-use product which fulfills as many needs as possible within an organization." Ideally, this powerful, easy-to-use product should run on all PCs, not just those with a 386 microprocessor running at 25 MHz.

He sagaciously observed: "Given that many of the PCs in use are 640 Kb machines running DOS, network software and a TSR or two, the product must run in a reasonable amount of memory." Noble sentiments, indeed.

Peterson added that while WordPerfect Corp. was working "furiously" on Presentation Manager and Windows products, the company still perceived the need for better DOS products. "5.1," he said was "definitely not the last of our DOS word processing releases."

Call it progress, call it creeping feature-itis, call it what you will, our hard-working friends in Orem, Utah, have their collective nose to the grindstone, as a glimpse of some of the planned enhancements to WordPerfect show:

• Pull-down Menus and Mouse Support

The function key layout of WordPerfect is embedded deep in the subconscious of many a grizzled veteran. But help for the neophyte and hapless weekend wordcruncher comes in the form of a menu bar and mice. In addition to selecting items on menus and sub-menus, a mouse can also be used to position the cursor, scroll through text, highlight a block, or select a file in List Files (F5).

• Spreadsheet Links

No "hot links" here, just "warm links." Apparently, information is updated when documents are retrieved.

• Equation Editor

All you physicists and mathematicians out there: WordPerfect Corp. is listening.

• Dictionary-Based Hyphenation

The vociferous opponents of algorithm-based hyphenation can now sheathe their swords. WP's spellchecker word dictionary now includes hyphenation information.

• Long Filenames

WordPerfect now supports filenames of up to 40 characters in length.

• Tables

WordPerfect now sports a Table function. It displays a grid onscreen for entering data. The dimensions of the grid can be manipulated in various ways.

WordPerfect Version 5.1 is currently in beta testing and expected in "November or December."

WordPerfect, 1555 N. Technology Way,
Orem, UT 84057, USA. Tel: +1 (801) 222-4020.

HYPERWARE RAPIDLY MULTIPLYING

Since its release some two years ago, Apple's HyperCard has been the agent for many thousands of professional and home-grown HyperCard "Stacks." But beyond that, it is proving to be the impetus for systems on other types of computer as well, most notably the PC/compatible.

IBM's LinkWay (announced in EW #15) is now joined by HyperPAD, from Syracuse-based Brightbill-Roberts, and Hyperdoc, from Hyperdoc Inc. (San Jose, CA).

Like its big brother on the Mac, HyperPAD (US\$99.95), has its own built-in scripting language: object-oriented PADTalk. Users can construct "pads", the equivalent of HyperCard stacks, with a variety of objects such as buttons, fields, scrolling windows, and dialog boxes, dressing them up in the tasteful elegance of the IBM graphic characters. Potential buyers might be disappointed, though, to learn that HyperCard's "cute" noises and flashy graphics will probably be out of the reach of anyone with a PC and this character-based system.

Hyperdoc (US\$395) is a hypertext authoring tool for PC/compatibles developed by the French firm GECI. It grew out of contracts for the European Space Agency building documentation systems.

Hyperdoc allows users to link multiple text documents and graphics images into an online documentation system. It is based on a structured programming language with commands for document handling, display, user input, and other functions. It handles graphics in the PCX formats. A module is in preparation to allow HyperCard stacks to be translated into Hyperdoc applications.

Brightbill-Roberts & Co. Ltd., 120 E Washington St., #421,
Syracuse, NY 13202, USA. Tel: +1 (315) 474-3400

Hyperdoc Inc., One Almaden Blvd., San Jose, CA 95113,
USA. Tel: +1 (408) 292-7970

CARDS (PART 2): LASER READABLE



Another shot has been fired in the battle for miniaturized memory devices. Canon has announced a new 2-Mb credit-card-sized plastic memory slice. The laser-readable "Personal Memory Device," as Canon calls it, will be ready for market in 1991. The exact nature of the targeted market has not yet been fully defined. But 2 Mb of memory, enough to hold a digitized photograph, might make the slice an attractive security device. The price for the drive is expected to be around US\$1,600.

Canon Europa,
Amsterdam. Tel:
+31 (20) 549 2911

NEW MOVE FOR CONTROVERSIAL NATLANG PIONEER

Artificial intelligence and natural language guru Roger "if-it-doesn't-learn-it-isn't-AI" Schank is to head the new Institute for the Learning Sciences at Northwestern University in Chicago.

The minimum US\$2.5-mn-a-year required for a few dozen staff will be ponied up by the world's largest management consultancy, Anderson Consulting, guaranteed up to 1995. Other sources say the total funding may be as high as US\$40 mn, making it the largest private non-biological research grant in the US.

In return, Anderson, which already conducts its own AI research, hopes to develop intelligent, video-based programs to train its clients' employees, plus other computerized training programs for corporate decision-making.

Schank leaves Yale University's Artificial Intelligence Project, where he built a reputation as one of the major forces in teaching computers to recognize natural English.

The move is not without controversy. Several of Schank's protégés at Yale have reportedly made the trip to Chicago with him. Yet some of the existing Engineering and Computer Science faculty staff regard the new Institute as a "mixed blessing." While the heightened world attention on AI at Northwestern will be nice, the fear is that the intensity of the focus will leave other worthwhile projects in the shade.



Acorn Ltd. will make its Support Information Database (SID) available to the British public via a Prestel gateway (including Micronet). SID contains all of Acorn's technical documentation, communications software, and other programs for Acorn's micros. Initially, it was made available to

HATCHET JOB FOR HACKERS

A bad reputation is tough to shake off, as the "computer enthusiasts" who attended the recent Galactic Hackers Party in Amsterdam have found to their cost.

The announcement that attenders were to pool their considerable talents in an international effort to isolate and crack the so-called October 13, or Datacrime 1, virus, backfired when they found themselves reviled in the US media not only for the virus's propagation, but its invention too.

Despite a Hacker's Party resolution expressing contempt for computer saboteurs of all types, the hackers have been tarred with the same brush as those they condemned.

"The people that spread the virus don't talk about it," said "PC immunologist" Win Schwartau, president of American Computer Security Inc. "They're not very popular over here right now."

Although Schwartau was not at the conference—"we're not hackers—we're in the security business"—he said that popular opinion was that Amsterdam was the source of the MS-DOS-attacking virus set to go off on Friday, October 13.

"The stir (the conference has caused) over here is phenomenal," said Schwartau. "It has hit the popular press and the major TV stations and started a small panic."

But he said that the virus's creation date, 11 March 1989, indicates it could not have been made in Amsterdam. "It's a misunderstanding—the virus became popularized there. No one knows who created it."

"Though the consensus of the speculation is that Germany was the source, there's no proof. Nobody I know, either here or in Europe, knows for sure. And if they do, they should give their source and quit pointing fingers."

Schwartau said his company first heard about the DOS-disrupter through security channels in Washington. "Then we started poking around our contacts in the underworld and got hold of a copy." From then, finding its signatures and attributes, writing a program and getting an antidote out the door took ACS six days.

"We have a huge amount of information on the virus and its vectors," said Schwartau. "It is very complex and sophisticated—it's a 'good' virus. One would assume it was put together by hackers."

The bug ranges from 1168 bytes to new strains of 1500-plus, because "people over here have already found out that we've fixed it and are now mutating it."

Will the tough line on hacking being pushed by the US have any effect? "Ultimately, yes. But it depends on how quick the government acts and how many people become aware of the problem," said Schwartau. "We are openly publishing everything we know."

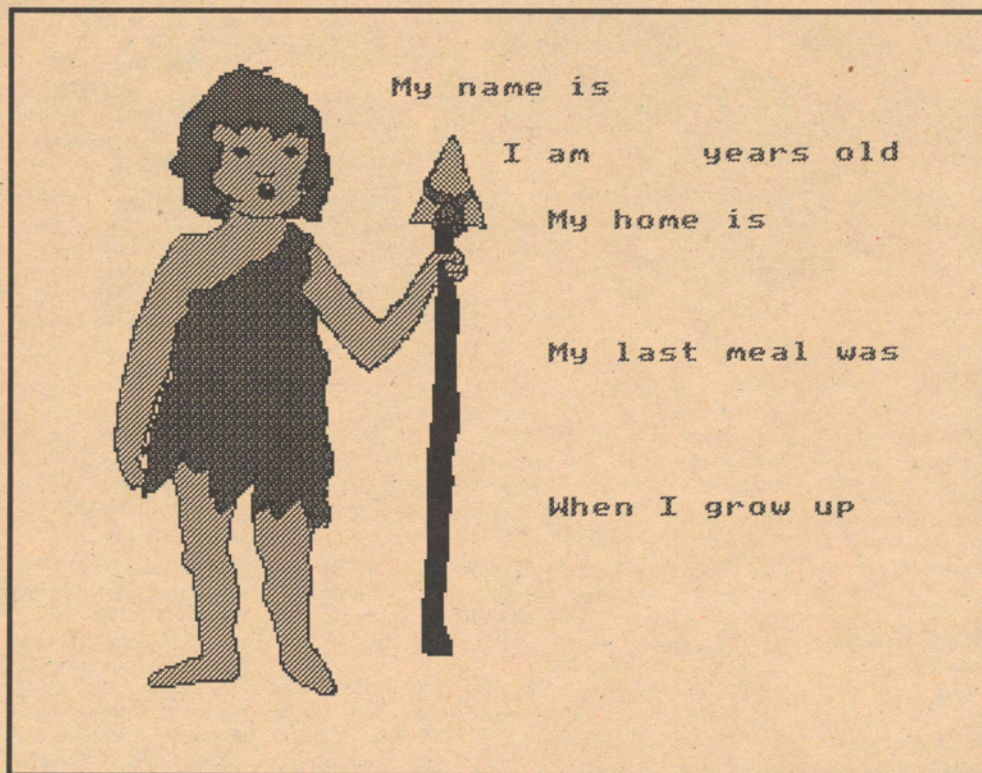
Schwartau declined to speculate on the motivations behind the virus makers, saying there's a wide range from pranks to politics, none of which he wished to fuel.

It's still okay for the corporate world to encourage hacking, apparently. Japan's huge telecommunications company, Nippon Telegraph and Telephone, has offered a reward of ¥1 million (US\$6,900) to any hacker who can crack its coded communications system in two years.

In a just-published report on computer crime, the UK Law Commission has recommended that simple hacking should be made an offense but that the police should

not have the power to arrest a suspect or search his premises.

UK Serious Fraud Office lawyer Mark Tantam attacked the recommendations as lame: "Short of a confession, hacking would be almost impossible to prove." Tantam stressed that the arrival of 1992 and the paperless society could only increase Europe-wide computer crime. And that would put increasing pressure on the EC law enforcement agencies to mount an effective response.



CAPTION UNLOCKS WRITING POTENTIAL

Caption is an "illustrated" wordprocessor which invites young users to write in text windows. It was designed by the UK National Council for Education Technology to help motivate reluctant writers and support language work by students with learning difficulties. But the ideas behind it are likely to prove equally useful for encouraging any young child to use words creatively.

Caption provides a combination of computer graphics and text that can be used for a number of classroom exercises such as writing magazine articles, displays, book jackets, class projects and jokes, the final version of which can be printed out.

It comprises four disks: a program disk plus three work disks that hold "captions" (in reality, illustrations with text windows). These may be subjects for writing about, such as "Upstairs Window"—the beginning of an adventure story; or they may be more structured writing assignments, such as "Cheque," the purpose of which is to practice filling in cheques.

The captions aim to spark off oral and written work, provide illustrations and borders for work, give onscreen support for creative writing, and display information in an eye-catching and attractive manner.

In doing so, the NCET hopes its use will foster a positive image in students with learning difficulties and encourage them to take pride in their written work as well as enhancing group interaction.

The NCET is hoping to develop more work disks with new captions in the future. Caption is currently available only for the BBC B and Master 128 computers. Price: UK£17.50 or £10 for educational institutions (£9 for 5+ copies).

NCET Publications, Hoddle Doyle and Meadows Ltd., Old Mead Road, Elsenham, Bishops Stortford, Herts CM22 6JN, UK



TWO NEW LEXULATORS FROM SELECTRONICS



dealers, education and home users.

ACL NATURAL LANGUAGE PLEA

The US Association for Computational Linguistics has appealed to publishers, academics, and industrial organizations to help Dr. Conrad Sabourin complete his Computer Processing of Natural Language Communications bibliographic database.

The ACL describes the database, put together as a labor of love by Sabourin, as "the major catalogue of publications and reports in computational linguistics, natural language processing, and other areas related to natural language and computation," and is adding its weight to his effort to get it finished and electronically published.

The database currently contains over 38,000 entries,

Selectronics Inc., specialist in the lexical equivalent to calculators, has updated its Wordfinder handheld electronic dictionary. It has also released the world's first handheld electronic Bible.

- The new Wordfinder 225 is the size of a credit card and as thick as a packet of chewing gum. It features a QWERTY keyboard and definitions of over 50,000 words including technical and mathematical terms. In addition, it offers reference info on US states and postal codes, presidents, birds, plants and chemicals. And it can correctly identify misspelt words.

The user can even use it as a flash card. Type in "?" followed by "DEF," and it randomly brings up words to be defined before displaying the answer. The data is squeezed onto a 512 Kb chip, using compression techniques licensed from Microlytics and developed at Xerox PARC.

Aimed at the executive market, the Wordfinder 225 will initially only be available through American Express at US\$129.95. If that's a little steep, wait: its predecessor Wordfinder 224 is already available at US mass volume outlets such as Kmart, Sears and Target for \$99.95.

- Selectronics' Electronic Bible, more compact than a Gutenberg and lighter than two tablets of stone, could be the perfect gift for the lay preacher who has everything.

Converted from cubits, the Bible's measurements are 3x6x1 inches—about the same size as a pocket-size printed

version. But unlike the Good Book, Selectronics' little miracle comes with text search and indexing, allowing users to instantly find any word, verse or both in both the Old and New Testaments.

The Word Made Silicon will "benefit both the lay reader and the scholar, making Bible study more rewarding and enjoyable," says Selectronics CEO Mike

Weiner.

And the Zondervan Corp, the world's largest publisher of Christian books, has agreed to distribute it in more than 7,000 bookshops in the US. Price: US\$299.95.

Selectronics, 701 Decatur Ave. North, Bldg. 204, Minneapolis, MN 55427 USA. Tel. +1 (612) 545-8049.

Meanwhile, worldwide members of the Anglican Communion—the church that risked a schism to bring you female bishops—can now celebrate the culmination of 15 years' work: a new (less-sexist) version of the New English Bible.

Rather than repeating its predecessor's reliance on a panel of literary gents to advise on phraseology, this time the church consulted typists, proofreaders and copy editors.

Out go the "thees" and "thous" and the use of "man," "men" and other gender-exclusive phrases in passages referring to all human beings. It is now "whichever of you is free from sin," rather than "he that is free of sin," who gets to cast the first stone.

"Modern English is still not too well equipped to express gender in inclusive terms," says the Rev. Prof. William McHardy, former Regius Professor of Hebrew at Oxford University and the revision's director.

Yet, although the grammar needed stretching this time, McHardy believes that the rate of evolution of spoken English to accommodate sexually inclusive terms is such that the problems will be pretty much ironed out by the next revision sometime next century.

The Revised English Bible will be published by the University Presses of Oxford and Cambridge, Bible publishers since the days when they beat witches with them.

US DATA SUPERHIGHWAY PROPOSED

The US is considering a plan for a national data superhighway capable of transmitting information up to 2,000 times faster than existing networks.

A report submitted last month to the US Congress by the White House Office of Science and Technology (OST) outlined a five-year program involving setting up a National Research and Education Network.

"A future national high-speed computer network could have the kind of catalytic effect on our society, industries, and universities that the telephone has had during the 20th century," said Allan Bromley, head of OST, in a letter accompanying the proposal.

The superhighway would link more than 1,000 research sites around the USA, with the goal of allowing users to exchange information at 50,000 single-spaced pages per second.

The report is the result of a strategy proposal for a five-year R&D program in high performance computing, which the Reagan administration sent to the US Congress two years ago.

The report simply proposes plans for consideration. Details of the stages in which it would be implemented are not available but would involve extending the capabilities of the Internet. At time of going to press, no decision had been made.



CARDS (PART 3): VOICE RECOGNITION IN YOUR WALLET

The research arm of the Baby Bell phone companies, Bellcore, has developed a smart credit card that can be trained to recognize the voiceprint of the card's owner with 99% accuracy (or 98% if they have a cold). Bellcore anticipates that the newly patented experimental system will operate as an alternative to Personal Identification Numbers on credit cards.

The card is "trained" to recognize a voice by digitizing the spoken word into a template of 6400 bits of data and then storing the template in the memory of a microprocessor, which is itself embedded in the credit card.

For the card to be used, it is inserted into a terminal, and the password is spoken into a microphone or telephone. The terminal's computer digitizes the spoken password and compares it to the template stored in the card.

Bellcore sees uses for the card beyond shopping: in securing access to buildings and in automated teller machines, for example. They could also be used by telephone companies to prevent people using stolen credit card numbers to pay for calls.

More than one word could be stored, allowing quite complex activities, such as storing phone numbers for automatic, veri-

fied phone calls, ending in a word like "terminate." Bellcore says a system based on this technology would be cheap, since it could work with existing smart cards and terminals.

Legal restrictions imposed after the 1984 breakup of AT&T prevent Bellcore from making its own speech recognition terminals, but the company hopes to license the technology to other manufacturers.

Bellcore, Bell Communications Research, 290 West Mt. Pleasant Ave., Livingston, NJ 07039 USA. Tel: +1 (201) 740-6181.

dating from 1945, representing 21,000 authors and describing work in 70 languages. But Sabourin estimates that 15,000 entries could still be missing, mainly in Eastern Europe, Germany, Japan, and China.

Sabourin has developed an indexing system containing 2,000 key words, 2,400 people, and 300 organizations active in the field, with their affiliations, addresses and fields of interest, and a catalogue of software and systems giving their use, languages processed, developers, programming languages, etc.

Besides computational linguistics proper, the database contains information on the AI or cognitive science approach to language processing, speech and character processing and recognition, document processing and hypertext, literary computing, and computer-assisted language learning.

Dr Conrad Sabourin, Paralingua, PO Box 187, Snowdon, Montreal, Quebec H3X 3TA, Canada. Tel: +1 (514) 731-466.

CD-ROM NEWS

BL TO THE RESCUE

The British Library has launched a CD-ROM, eight-database, biomedical search service in its Aldwych Reading Room. Library staff will perform searches of products, techniques, or publications (for a fee, naturally). Following the search, users can refer to the library's printed collection of life and earth science journals to obtain complete texts. The new service is aimed at helping small businesses.

British Library. Tel. +44 (1) 323 7302.

CELESTIAL CD-ROM

Planetary images from the Voyager and Viking space missions have been collected on CD-ROM. The 600-Mb GRIPS (Government Raster Image Processing Software and Data) disk contains hundreds of images that can be viewed, manipulated, and analyzed on PCs with more than one Mb of memory. A thousand copies of GRIPS are available to the public for the nominal fee of US\$9.00 (while stocks last).

Meridian Data, 5615 Scotts Valley Drive, Scotts Valley, CA 95066, USA. Tel: +1 (408) 438-3100

CD-ROM MAC-CYCLOPEDIA

The Grolier Academic American Encyclopedia - 31,000 articles, 21 volumes - has been packed onto a CD-ROM for the Mac. Named The New Electronic Encyclopedia, the US\$395 Grolier is indexed as a nine-million word database, equipped with a Boolean smart search engine. The current version is text-only. Future versions may have color images and sound.

Grolier. Tel. +1 (203) 797-3500.

JUSTIS FOR ALL

Everything you always wanted to know about European Community regulatory acts, and even more, is now available on CD-ROM, in release 2 of the legal database JUSTIS. The first release of JUSTIS contained the full text of the Official Journal of the European Communities. The new JUSTIS incorporates CELEX, the official legal database of the EC.

CELEX contains details of the treaties establishing the EC and the legislative proposals and decisions of the European Court of Justice. The full text of the twin database groups, legislation and cases, augmented by an optional legislative proposals disk, costs US\$1,840.

Context Limited, Assets House, Elverton Street, London SW1P 2QG, UK. Tel: +44 (1) 828 2355

CD-ROM CROWD-CONTROL

CD Connection, a Local Area Network (LAN) CD-ROM drive management program developed by CBIS Corp. (Norcross, GA) now supports Novell Netware's proprietary IPX protocol. This will allow greater user access to the growing number of commercial and reference CD-ROM-based databases.

CBIS. Tel. +1 (404) 446-1332.



SPACEBUSTER

The price of property in the world's great metropolitan centers being what it is, many readers may be living and working in a shoebox. For anyone with a desk space shortage, the Microtype, with a footprint of a little over 27x15 cm, has all the functions of a normal keyboard at less than half the space. The 100-key AT and PS/2 compatible keyboard comes in US, International, British, French, Dutch, German, Spanish and Italian versions.

MEI Ltd., PO Box 104, Leatherhead, Surrey KT24 5TZ, UK. Tel: +44 (4865) 5667

CLARIS OBSOLETE FILE FORMATS?

A clever new system has been announced by Claris (Santa Clara, CA) that might one day go a long way to obliterating the nuisance of "file formats."

Claris is planning a common architecture for all of its applications, called XTND ("extend") which will allow developers to make file translators for Claris products and allow users to import and export word-processing, graphics, database, and spreadsheet files directly.

A new version of MacWrite II, version 1.1, will be the first to use XTND. 1.1 will support 30 file formats, allowing users to exchange files with many Mac, PC/compatible, minicomputer, and mainframe applications.

Claris says that you will no longer need a file translation utility to convert WordPerfect 5.0 files to MacWrite II format. Simply select the file in the "Open" dialog box, and XTND automatically converts the file.

Third party developers will be able to license XTND at no charge. Users will simply copy XTND translator files into their System Folder to be able to take advantage of this.

Claris Corp., 5201 Patrick Henry Drive, Santa Clara, CA 94043, USA. Tel: +1 (408) 987-7000

WE WANT NEWS

Electric Word welcomes all hot tips, praise, complaints, gossip, feature ideas, weather information, heavy breathing - and news.

If you know of anything that could alter the state of the art of wordworking, let Jules Marshall or Geoff Pogson know. Tel: +31 (20) 664 8151. Fax: 664 6551. E-mail: CompuServe 77630,2345. Post/carrier pigeon/native bearer: Emmalaan 21, 1075 AT Amsterdam, The Netherlands.

LERNEN SIE ENGLISH MIT DER BBC



The first ever interactive videodisk for teaching business English, scripted and shot by the EFL arm of the BBC, and previewed in EW#15's Resource Guide, has been released.

The European Connection has 100 hours of business and social footage, plus interviews with leading business people. It teaches 3,000 essential

phrases, interactively accessible by keyboard or mouse in 19 chapters.

Currently available only in English/German, further versions are expected, with English/Swedish the most likely candidate.

Extensive pre-release testing by groups of computer-illiterate or semi-literate native-speaking Germans has

ensured that the cybertutor can be used completely independently.

The advantages of video-based teaching are:

- The whole communicative act can be conveyed, from body language and facial expressions to lip movements and social behavior – supported by optional English or German subtitles (with/without sound/video), allowing the teaching of authentic, natural-speed English.

- There's instant playback of language imitation cues.

- It allows users to learn at their own speed, in an intuitive browse, with support any time, while avoiding the potential embarrassment of classroom teaching.

- A special help function is available in pause mode that lets the role model being watched repeat each phrase but more clearly, or hear the word/phrase spoken slowly in either an English or American accent.

"Interactive video can be used to replace essentially all of the intensive language acquisition and practice phase of language learning," claims Vektor Ltd., which collaborated on the videodisk with BBC English and IBM UK.

The minimum requirements for the European Connection will put it out of reach for a lot of pockets: a PC/compatible, a Laservision standard videodisk player, Videologic MIC 2000 EGA interface card, and a fast-blanking monitor (to cut out "ghost" after-images).

But savings of 40-50% of teacher time will make the video a winner with language schools, claims Peter Walton, the BBC English producer: "We estimate it will take six months for a language school to pay for it in saved teacher time."

BBC English, PO Box 76, Bush House, London WC2B 4PH, UK. Tel. + 44 (1) 257-2801.

QUELS BÂTARDES! QUELLES BÊTISES!

Cultural vandalism? Or recognition that occasional pruning is necessary to maintain the nation's cultural vigor? Spelling reform can excite the passions of a proud and literate nation like nothing else.

The French now find themselves in the midst of new bout of reform-fever, the target this time being illogical spelling. And the poor little circumflex is in danger of extinction.

This latest debate has sucked in writers, teachers, ministers, and other public figures, and has been triggered by the publication of a tract called *Que vive l'orthographe!*, just in time for the new school year.

Authors Jacques Leconte and Phil-

ippe Cibois call on that guardian of linguistic purity, the Académie Française, and on François Mitterand's government to support spelling reform and enshrine it in law.

Their argument is that simpler spelling would make life easier for France's schoolchildren and that immigrants especially would benefit from a French that was more phonetic (or "fonétique": the *révolution filologique* aims to drop "ph" for "f", bringing French into line with the other Romance languages).

Leconte and Cibois have met with much public support. General secretary of the primary teachers' union Jean-Claude Barbarant supports the authors in a postscript to the book,

claiming that spelling fails to recognize that language is now the possession of the masses, rather than just of an educated élite. And apparently, 82% of teachers' comments sent to him support that point of view.

Not everyone agrees, however. "Lowering French to the level of those who can't spell," is the anti-reformist cry. And the French Right, always a little distrustful of teachers, has hit back bitterly. The Giscardian Democracy Movement recently called Barbarant the "Pol Pot of the French Language."

The debate rages, but still with no word from the Académie. Stay tuned / *Resté accroché.*

ONLINE TRANSLATION FOR BUSINESS

The US online translation firm Wordnet has teamed up with Text-Export from Vienna, Austria, to create the world's largest electronic network specializing in the translation of hightech and business documentation.

The co-venture has created an online team of 400 professional writers, editors, and translators, listed in the Wordnet database according to 30 different criteria, including native language, education and professional accreditation in the languages offered.

"We can ensure that the translation of a company's message will always be grammatically correct and culturally authentic," says Lee Chadeayne, president of Wordnet.

"Online technology is both the medium and the message," says Chadeayne. "Our electronic networks help us to reach the best person for any speciality, anywhere in the world. Then we can link up the writer or translator

with an editor who is online thousands of miles away. And they can all keep in constant contact with our home base here in Massachusetts."

This allows Wordnet to offer speed, accuracy, and a sense of working together as a team, says Chadeayne. It also means they can keep up with globetrotting business 24 hours a day.

Users of Wordnet's services have included the US Olympic Committee, former US Secretary of State George Schultz, and the US Surgeon-General's Report on AIDS, which was translated into 12 languages.

With a growth rate sticking at 200% per annum, Wordnet anticipates a round of hiring and expansion between now and the end of the year, says Chadeayne.

WordNet, 8 Agawan Rd., P.O. Box 164, Acton MA 01720, USA. Tel: +1(508) 264-0600

SEARCH JAPANESE DATABASES IN ENGLISH

You don't speak Japanese. Yet you would like access to the same databanks as the competition? If Fujitsu America's claims hold water – and words – English speakers will soon be able to tap into Japanese-language technical databases without having to use a single syllable of Japanese.

The ScanFile system will accept search requests in English and transmit them to Japan, where Fujitsu's Facom Information Processing System (FIP) will receive and translate them on Atlas II (a semantic-based MT system). The Japanese-language request will then trigger a database search, the

result of which will be translated into English and transmitted back to the user – over public telephone lines.

Prices for the translational data search service are not yet known. However, given the quality of the Japanese-to-English translation currently possible, they couldn't charge much.

Bix network's Microbytes (#363) reports that at a recent demonstration in San Francisco, some sentences bore only a passing resemblance to English. However, Fujitsu's spokesperson Catherine Kawakame said the system demonstrated there was "a prototype of a prototype." Lets hope so.

The European Community contracted Fujitsu last year to provide online English translations of Japanese conference proceedings and technical reports (see EW #14).

Fujitsu America, 3055 Orchard Drive, San Jose, CA 95134-2022, USA. Tel: +1 (408) 432-1300

ORIENT MEETS OCCIDENT (ON THE SAME PAGE)

At the September Seybold Computer Publishing Conference in San Francisco, XyVision introduced the first Japanese-language publishing software to offer composition and pagination on a production-quality system featuring WYSIWYG display. This gives XyVision the most complete Japanese-language publishing system available to date, according to international vice president Brian Mulholland.

"The ability to offer a system that produces documentation in both ideographic and Western languages, mixing the different character sets together in the same document, is a major step forward in the Japanese marketplace," he said.

Other features include: the input of Japanese in a variety of formats including JIS, Shift JIS, JEF and KEIS; the addition of Furigana, phonetic characters added as superscripts to help in the pronunciation of ideographic characters; and Japanese fonts from Bitstream for the XyVision laser printer and Chelgraph ideographic typesetter.

XyVision Ltd., 246 Bedford Ave, Slough, Berks. SL14RJ, UK. Tel: +44 (753) 820565

Due to "dramatically increased product and shipping costs," Qualitas Trading Co, the Berkeley, California-based maker of Japanese wordprocessing and dtp products such as Kanji Pagemaker 2.0 and Mac VJE 1.2, has announced changes to its discount structure. Tel: +1 (415) 848-8080.

TERMWARE UPGRADE

LinguaTech International (Provo, UT) has released version 2.0 of MTX, its memory-resident terminology manager, along with a prototype version for Russian. MTX (formerly called Termex in Europe, Mercury in the US – see EW #15) provides online access to glossaries and dictionaries without forcing users to exit from their MS-DOS wordprocessor.

NEW TORTURE

Computer Aided Language Learning company Hyperglot has released version 3.0 of its Word Torture drilling programs for German, French, Spanish, and Russian.

New features include the ability to vary the time lapse between words within the same set, multiple correct answers, a more intuitive interface, automatic checking of answers and program retest solely on words missed.

Price: US\$39.95 or \$10 upgrade for owners of Word Torture 2.0. Tel: +1 (615) 558-8270

DASHES: MULTILANG HYPHENATION

Dashes is a new Mac Desk Accessory with some breathtaking linguistic smarts. Namely, it hyphenates documents in no less than 15 languages. Circle Noetics, the New Hampshire-based development company, claims a 99% accuracy rate (Icelandic excepted) and says the program is compatible with most major wordprocessors and dtp packages.

In addition to English, the languages supported are: French, Italian, Portuguese, and Spanish among the Romance languages; Danish, Dutch, German, Norwegian, Swedish, and Icelandic of the Germanic languages; and then Greek, Turkish, Russian, Croatian, and Finnish. *Caramba!*

A special compounding algorithm for Germanic languages makes hyphenation in these languages "really reliable for the first time," claims Circle.

The multilingual hyphenation routines are already being implemented by OEMs for software on a number of computers: Macs and PC/compatibles; Sun, Apollo, and AT&T workstations; and VAX and Amiga systems.

Circle Noetic Services, 5 Pine Knoll Drive, Mount Vernon, NH 03507, USA Tel: +1 (603) 672-6151



MAX KISMAN



WANT TO GET
SOMETHING OFF
YOUR CHEST?
WRITE TO THE
EDITOR, ELECTRIC
WORD, BOX
70486, 1007KL
AMSTERDAM,
THE
NETHERLANDS.

WORLDWIDE STANDARDS FOR POWER WORDWORKERS (PART TWO)

(This is the second and final part of an article by Jean Datta. In Part One, Datta described the work of the International Standards Organization—ISO—in devising standard formulations for dates, currencies, and the transliteration of non-Roman writing systems.)

SUBDIVISIONS, PRESENTATION AND REFERENCES

A headache different from the one caused by character-set limitations besets translators and editors who have to blaze a path through chaotically numbered and subdivided documents, let alone those that leave their author's pen as an amorphous mass.

ISO has addressed this matter (ISO 2145-1978), advocating the use of a scheme employing Arabic numerals only, which clarifies the interrelation of divisions and subdivisions and simplifies retrieval of passages. Main divisions are designated by consecutive Arabic numerals, and can be subdivided to any desired number of levels, with subdivisions also consecutively

numbered, the numbers being separated by full stops.

It is easy to see that a section of a text numbered 4.2.1.6 is the sixth third-level subdivision under the first second-level subdivision, under the second first-level subdivision of the fourth main section. Unfortunately, authors with a passion for taxonomy may hand the reader subdivisions such as 3.17.1.8.1.2.5.3, which confuse more than they clarify. This is why the standard advises that the number of subdivisions should be limited.

Advice on numbering of divisions and subdivisions is only one small component in the whole package of guidelines for authors of scientific and technical reports contained in the standard on presentation of scientific and technical reports (ISO 5966-1982). Several of these guidelines, like numbering, in fact reflect other international standards, the essential elements of which are brought together for the convenience of authors.

The general guidance on such matters as ordering of the report, the table of

contents, preface, conclusions and recommendations, acknowledgements, illustrations and tables and mathematical, physical and chemical formulae reflect a sound common-sense approach to turning out a businesslike document that will be easy to refer to and use.

As regards the guidance given on front matter, any editor or translator who has pondered the meaning of some particularly obscure signs, symbols or abbreviations will applaud, more than the good advice on title pages, abstracts and tables of contents, the admonition that any signs, symbols, units, abbreviations or terms that may not be understood by the readers should be defined in lists following the table of contents.

References can present particular problems to the preparers of documents, the wordworkers processing them and to the readers themselves. What to put in, what to leave out, what order to adopt so that the work referred to can be conveniently identified and located are questions that it is not always easy to answer, especially in view of the fact that usages tend to differ widely.

The standard on scientific and technical reports packs a concise statement of how to handle references (reference lists, reference footnotes and citations in text) into just two pages, but for wordworkers hungering for more detailed guidance, ISO 690-1987 outlines the form of references for other things—monographs, serials, parts or contributions to monographs, articles in serials and patent documents—and offers advice on many conundrums such as abbreviations, capitalization, punctuation and what to do when various items of information are missing.

This goes in tandem with the exhaustive listing in ISO 832-1975 of abbreviations likely to be used in bibliographical references—in 16 languages using the Latin alphabet and three using Cyrillic.

PRESENTATION OF TRANSLATIONS AND TERMINOLOGY

The standard on presentation of translations (ISO 2384-1977) by no means qualifies as a thumbnail translation course for the uninitiated, but it does offer a few nuggets that will not go unappreciated, for example, on whether to translate names and symbols of organizations, what to do about new concepts or terms and how to handle geographical names.

As much as most of the guidelines represent common sense (e.g., leave the name of an organization in the original language, giving a translation in brackets, unless an equivalent exists in the language of translation), the authorizing stamp of the standardizer is welcome.

Wordworkers may fret over form and presentation and weigh their implications for the unambiguous conveyance of meaning, but terminology can make them tear their hair.

Unfortunately, the guidance thus far offered by ISO standards on terminology will not change most wordworkers' lives. The standards on principles and methods of terminology (ISO 704-1987), interna-

NEWSPEAK

"If Gustave Eiffel were alive today, he would be working in software. What iron, steel and reinforced concrete were in the late 19th and early 20th centuries, software is now: the pre-eminent medium for building new and visionary structures."

David Gelernter, associate professor of computer science at Yale University, from *The Metamorphosis of Information Management*, *Scientific American*, August 1989.

"Information anxiety is produced by the ever-widening gap between what we understand and what we think we understand. It's the black hole between data and knowledge, and it happens when information doesn't tell us what we want or need to know."

Richard Wurman, architect, graphic designer, cartographer and president of *The Understanding Business*, in *Information Anxiety* (to be reviewed next issue).

"The television set of the future will be ... a global cornucopia of programming and nearly infinite libraries of data, education and entertainment ... The arguments which have recently dominated British broadcasting, such as multi-channel choice versus public-service duopoly, will soon sound as if they belong to the Stone Age."

Rupert Murdoch, owner of Sky TV, Fox TV, etc etc, speaking at the Edinburgh Festival on the deregulation of the UK TV industry.

"The microprocessor of the year 2000, with a projected 50 million transistors on a die measuring 1 inch square, could incorporate multiple processors with an aggregate performance of over 2000 million instructions per second (MIPS). This estimate assumes that Micro 2000 will operate at over 250 megahertz and that each processor on it would perform at over 750 MIPS. Such predictions are not hard to believe—over the last 30 years, the MIPS/dollar ratio of computers has increased by a factor of over one million ... The technology of Micro 2000 will put incredible quantities of information at the user's disposal: a handheld calculator-sized computer will house a reasonably sized local library that can be searched for any material in less than a minute."

Patrick P. Gelsinger, **Paolo A Gargini**, **Gerhard H. Parker**, **Albert Y.C. Yu**, senior Intel engineers, writing in *Spectrum*, the journal of the Institute of Electric and Electronics Engineers.

"The center of profitability in the computer industry is steadily drifting from hardware to software. The spread of networking further threatens hardware industry profitability by cracking captive markets and erasing the distinctions among competing machines. The technology seems to be turning in on itself, focusing more on blinding speed at engineering benchmark tests than on the central real world problem, which is that most computers are only just barely usable by most people."

Michael Gianturco, president of *The Princeton Portfolios*, an investment management firm, writing in *Forbes*.



tional unification of concepts and terms (ISO/R 860-1968), preparation of classified vocabularies (ISO R 919-1969), layout of multilingual classified vocabularies (ISO/R 1149-1969) and lexicographical symbols (ISO 1951-1973) are mainly aimed at terminologists *per se*, and would not afford a great deal of direct help to the translators, editors and authors who might use the glossaries resulting from the terminologists' efforts.

The standard embodying a magnetic tape exchange format for terminological/lexicographical records (MATER) (ISO 6156-1987) merits a few words because of its potential importance for future efforts to share and co-ordinate terminologies in a "wired-up" world.

MATER is a purely technical standard that describes the elements in and organization of electronic record embodying terminological or lexicographical information; it does not contemplate the actual content of the records. Its purpose is to make it possible to exchange terminological data in electronic form, without the need for rekeying. If both parties to a potential interchange of terminological data are implementing MATER, their terminology databases will be able to "understand" each other's records on magnetic tape, since they will share the same format structure.

The catch is that the MATER standard does not specify what data fields should go into terminological records, so that one MATER-based system reading the records of another one may find that some of the fields do not coincide with its own, and thus cannot find a place to store them. In order to make possible automatic interchange, term records must be compatible not only in their electronic format, but also in their substantive content.

That is why the International Information Center for Terminology (INFOTERM), a body affiliated to the Austrian Standards Institute specializing in the study of terminology theory and methods, is developing guidelines for the recording of terminological data for machine processing. INFOTERM will suggest these guidelines to ISO Technical Committee 37, which is responsible for the MATER standard, with a view to their inclusion as an integral part of it at the time of the next five-year update, in 1992.

If the standard does come to embody a description of the data fields to be included in standardized term records, the hope that wordworkers will be able to trade terms on magnetic tape, integrating the fruits of other wordworkers' researches into their own termbases without rekeying, will have come one step closer to being a reality.

OTHER STANDARDS BRINGING ORDER INTO CHAOS

ISO has developed standards on a number of other aspects of the wordworker's craft, such as presentation of contributions to periodicals (ISO 215-1986), presentation of theses and similar documents (ISO 7144-1986), index of a publication (ISO 999-1975), guidelines for the estab-

lishment of monolingual thesauri (ISO 2788-1986) and multilingual thesauri (ISO 5964-1985), international standard book numbering (ISO 2108-1978), and abstracts for publications and documentation (ISO 214-1976).

Then of course there is a whole standards series setting forth units of measurement used in various scientific and technical fields (ISO 31 series), the *Système International* (SI) (ISO 1000-1973), and the standard on representations of SI units for use in systems with limited character sets (ISO 2955-1974), which are collected in a separate handbook ("ISO Standards Handbook 2: Units of Measurement," ISBN 92-67-10025-4).

Being a power wordworker often means being an adroit improviser and an acute interpreter and articulator of what so very often are untidy categories of human thought.

The amount of assistance that standardization can afford in such an endeavor

is of necessity limited, but it is nonetheless an assistance that imposes some order and discipline on the chaos of individualistic expression, and so improves the chances that the message that leaves its originator will be understood by its recipient as it was intended.

That is the best reason there could be for every power wordworker to always keep the ISO standards handbook on documentation and information on the shelf over the PC, and to refer to it often.

Jean Datta is a reviser of English translations at the United Nations Industrial Development Organization, Vienna, Austria. She is the author of numerous articles on language-related subjects. She has been in charge of terminology at UNIDO and has given courses in English drafting. The views expressed in this article are her own and do not necessarily reflect the views of UNIDO.

LETTERS

BETTERWORKING PUBLISHER

Editor,

I was very happy to see a review of one of our products, *BetterWorking Word Publisher*, in your magazine (#14, p.56-Ed.). However, I also noticed that it contained three errors.

First, the price was published incorrectly as \$69.95; it is in fact \$59.95. Second, the reviewer stated that we "only output to a couple of matrix printers and the trusty old HP Laserjet," while in reality, we support over 250 printers. Third, the telephone number listed was for customer support; our information number (*only reachable from America, however - Ed.*) is (800) 826-0706.

Incidentally, the latest version of our award-winning, fully integrated, productivity program, *BetterWorking Eight-In-One 2.0* was rated over Microsoft Works and PFS: First Choice in a recent study done by an independent software testing lab. Let me know if you'd like to review it.

Leslie Daley

Spinnaker Software
Cambridge, MA, USA.

EW replies: Is Wally Jumblat king of the Druze? Get it FedExed over here asap, Leslie, with a pro forma invoice stating "Review Copy, Of No Commercial Value" (the vigilance of Dutch Excise gestapo exceeds the bounds of all decency, I'm afraid). We for our part, will then do the decent thing.

BACK TO THE CHALKFACE

Editor,

In Geoff Pogson's article "...Singing and Dancing at the Chalkface," he mentioned statistics on the CAL industry and microcomputer distribution in US and European schools. I need to obtain more specific information of this kind

and would greatly appreciate it if you could direct me to a proper source.

In particular, I would like to know the number and types of micros in secondary schools and universities in the US and Europe as well as the size and trends of the CAL and CALL industries. To this point, I have been frustrated by the scantiness of information available on these subjects.

I am a newcomer to your magazine, and I think it is an invaluable resource. I mailed in my subscription to *Electric Word* the same day I first saw a copy at a library here at MIT. Thank you for doing such a fine job, and I look forward to staying abreast of the latest developments in computer language technologies through the pages of your magazine.

Dimitry Rtischev

1620 Worcester Road #543B
Framingham, MA 01701 USA.

Geoff Pogson replies:

Getting info on the use of computers in schools can be tough, though in America it's rather more straightforward than in Europe.

Last year, the US Congress's Office of Technology Assessment published an exhaustive report on the subject, entitled "Power On," available from the Government Printing Office, Washington DC. Tel: +1 (202) 224-9241.

In the UK, the National Council for Educational Technology (NCET) is very helpful. Tel: +44 (1) 636-4186.

In the other European countries, approach the information offices of the national education ministries. Or for a global EC picture, try the European Commission's Directorate General for Social Affairs and Education (DG 5), which has an information number in Brussels: +32 (2) 335 1111.

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Enquête sur les industries de la langue

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Inquérito sobre as indústrias da língua

Ερευνα σχετικά με τις βιομηχανίες της γλώσσας



force of advanced industrial countries is already involved in information activities, it's clear that these technologies are not only exciting but crucial. Crucial to the individuals and corporations that need them. And crucial to the competitive wellbeing of the societies that develop them and foster their use.

This month, we're taking a look at CD-ROM-based reference works being used at a translation agency.

A LITTLE BACKGROUND ON CD-ROM STORAGE

In the six or so years since it was introduced, the CD (Compact Disk) has become completely integrated within the audio industry. It is now even on the verge of replacing records as the primary medium for recorded music.

Introduced in 1985, the CD-ROM (Read Only Memory) has been slower to take off. Only during the past year has CD-ROM acquired real momentum in the marketplace, with more and more titles becoming available.

One factor could be the decrease in the production costs of CD-ROMs. Because of this, it is now possible to publish titles in specialized fields, or publish materials which need to be updated regularly.

Another reason could be the steady growth in the popularity of Local Area Networks (LANs), which can permit multiple users to share a CD-ROM drive.

While huge collections of data are not new – indeed they have long been a fixture in the mainframe world – what is new is having them on the desktop. The enormous storage capabilities that CD-ROM offers, linked with the automatic indexing and fast retrieval which computers are so prolific at, is proving too attractive for publishers to ignore.

In particular, these qualities make CD-ROM a natural for reference works. Good retrieval software can make lightning-fast searches for specific items among huge amounts of information, and instantly retrieve relevant entries.

With the technology available today, reference materials can be published on CD-ROM, a CD-ROM player can be shared among many users in a LAN, and information can be retrieved directly onscreen and into the users' wordprocessors via memory-resident (TSR) software.

A case in point: multilingual technical dictionaries. Most translators and translation agencies are active in more than one field, and most handle several foreign languages. Technical dictionaries are available for many fields in science and industry, but they are very expensive, cumbersome, and soon obsolete.

While printed reference works show no signs of relinquishing supremacy, the CD-ROM is potentially an extremely valuable tool for writers in general – and translators in particular – who work at personal computers.

A CASE STUDY

Situation: An Antwerp-based translation agency which translates primarily English, Dutch, and French materials.

The agency, Van der Pluyn / van den Eynde, read in *Electric Word* about the new multilingual dictionaries and technical termbanks published on CD-ROM by Sweden-based Walters Lexicon and felt they could enhance the agency's productivity.

The agency hired a Brussels computer consultancy to implement a system whereby three fulltime Mac-based translators could access the reference works from within their wordprocessors, as well as build specialized terminology lists for clients or other purposes.

Solution: The Brussels consultancy, Innovative Marketing, dedicated a PC-compatible running remote access software (PC-Anywhere) as the CD-ROM server. AppleTalk-based network software allows translators to perform searches in the CD-ROM-based dictionaries while translating at their Macs.

How and Why: Running the program PC-MacTerm in one window together with wordprocessing software in another window under MultiFinder on the Mac, translators can log into PC-Anywhere (one at a time) and control the CD-ROM retrieval software. The contents of the PC's screen are actually displayed on the Macs in the MultiFinder window.

To look up a term, a translator first indicates his source and target languages. Searches can be performed on either primary or secondary keywords. Terms or definitions found can be copied from the CD-ROM window and pasted into a Mac wordprocessing document via the Clipboard.

Results: Mr. van der Pluyn said that translators could use it for about 80% of their needs. They found the dictionaries excellent for general use, with extensive examples of idioms and prepositions.

In general, he said the arrangement was very satisfactory. But because the thirteen bilingual dictionaries all go in or out of English, a translator translating a document from Dutch into French has to work "via" English, an extra step. Mr van der Pluyn said it would be "ideal" if there were more language pairs, such as Dutch-French.

Because the agency translates a lot of legal language, it augments the Walter's dictionaries with its own terminology lists, also maintained on the CD-ROM server. On the Macs, translators can likewise open these terminology lists in a MultiFinder window.

Conclusion: Online terminology dictionaries are a powerful tool, which can significantly enhance the translator's productivity.

A set-up like the Van der Pluyn / van den Eynde agency's is clearly well-suited for a small group of users. The configuration is an efficient way of sharing this valuable resource.

And as Walter's updates or supplements its dictionaries, users like Van der Pluyn / van den Eynde can purchase updates for considerably less than new editions of traditional printed reference works.

The LIS Bulletin is a publication of the Language Industry Survey, an officially funded project of DG XIII of the Commission of the European Communities. The Language Industries Survey is a research and evangelical project intended to inventory and foster awareness of the language industries in Europe and around the world. If you are a researcher, developer or producer of hardware or software for the language industries, please write to us for a questionnaire. If you are a qualified respondent, you will receive a database of public information on a floppy disk about all the respondents (expected to number over a thousand), in addition to a free, one-year subscription to Electric Word. Send your request to:

LIS Questionnaire – EW #16
P.O. Box 5477
1007 AL Amsterdam
The Netherlands

Introduction

This is the fourth in a continuing series of Language Industries Survey (LIS) Bulletins, appearing regularly in *Electric Word* magazine. LIS Bulletins focus on the demand side of language technology – how corporate users have implemented new technologies to solve various critical problems in dealing with language and paperwork burdens. Specifically, we examine the nature of their problems, the range of technologies currently available, and how these companies have implemented these solutions in their own organizations.

The technologies we cover are some of the newest and most exciting in computing. They have been developed by the emerging language industries, and include:

- products which facilitate the manipulation of word-based information, like wordprocessing and desktop publishing;
- new methods of inputting text (optical character recognition);
- and new technologies which apply linguistic intelligence to processing natural language – like advanced inputting devices (intelligent character recognition), grammar checkers, and ultimately natural language understanding and machine translation.

Since recent estimates indicate that almost half the labor

REFERENCE ON CD-ROM

CHARLES BIGELOW: ZEN AND THE ART OF ONSCREEN EDITING



By Steve Rosenthal

Printing his own book of poetry is what really made designer Charles Bigelow start looking at the space where computers, typography, and design all meet. In the process, Bigelow has already become a well known typographic designer, associate professor of art and computer science at Stanford University, and an outspoken and eloquent commentator on the relationship between typographic form and meaning.

And the kid's only just started. At 44, Charles Bigelow is barely hitting his stride.

SUPERFAMILY

As a typographic designer, Charles Bigelow has been most influential as an ardent proponent of the view that letterforms must reflect the technology in which they are reproduced. Digital media in general, and video displays in particular, are very different from the stone, paper, or photographic materials of the past, and they present a different reading environment.

"By the early 1980s," says Bigelow, "it was clear that the cathode ray tube screen would be the primary working medium for many types of writing and document creation." That meant users would be spending many hours staring at lettering on the screen. But screens, with their 30 to 80 dots per inch, do not have nearly the same resolution as printed letters.

"On paper, you need about 600 dots per inch to render typefaces with anything close to acceptable traditional quality," he maintains. "So screens give you on average one-tenth of what you need to make high quality type. The challenge is to make your letterforms legible."

Having been in the typeface design business since the early 1970s – and having already designed a typeface named Leviathan and a font for the Chinook Native American language – in 1982, Bigelow decided to turn his skills to electronic typeface design.

"I felt I should design typefaces for laser printers," he remembers. "I thought that people needed simple, coordinated designs. People who used laser printers would not be as sophisticated as typesetters, but they needed type just as much."

The approach that Bigelow proposed was a coordinated system of type that extended further than the traditional single typeface family. "I think at that time I called it an 'extended family,' but some people are now calling it a 'superfamily.'"

A complete superfamily, in Bigelow's view, would include both serif and sans serif forms of type in Roman, italic and bold forms, and both proportionally spaced and monospaced forms.

Most laser printer users, he points out, are already working with one de facto superfamily, but not of the kind that he has been designing. "The combination of Times, Helvetica, and Courier has become kind of an extended family, not because they enjoy the same shapes or proportions, but because they are provided in just about every laser printer."

Bigelow's entry into the superfamily category was a set of fonts based on his

Lucida typeface – a font that was specifically designed for readability on cathode ray tube screens – and the Pellucida variation designed for laser printers. "It's used mostly for simple things like memos and reports," Bigelow says, "but a variation we call Lucida Bright has been adopted by Scientific American."

Bigelow has also written extensively about type and design for publications as diverse as MacWorld, Scientific American, Fine Print and the Oxford International Encyclopedia of Linguistics.

BETWEEN OBSCURANTISM AND CLICHÉ

"I'm also a teacher," Bigelow notes. "I teach in the departments of art and computer science at Stanford. Which is an odd combination, because art is in the School of Humanities and computer science in the School of Engineering. I've taught some very specialized courses in type design and computerized typography and layout – and the theory and principles of how you develop tools for designing type interactively."

"We've graduated a few students with a Master of Science in Digital Typography," Bigelow says. But he points out that the majority of his teaching is less for specialists in digital type than for design and computer students in general.

"I teach a more generalized course that I call Concepts of Text. Students come from computer science, art, journalism – or anywhere. In a sense, they look at writing systems and civilization. We start at the beginning, with Babylonian cuneiforms, and fairly rapidly arrive at typography."

The course, Bigelow explains, is not just a historical review. What makes it particularly successful and popular, he maintains, is that he takes a wide ranging view of the relationship between writing and language.

"If you could use colors to depict language, for example, what colors would vowels be? And what textures would you use for consonants? Every year I do an exercise like that."

Another popular exercise, he says, has been one that grew out of the study of iconographic writing systems such as Chinese and Japanese. "I have the students keep a notebook in which they design icons for their daily life. Usually, they come up with waking up, going to class, riding their bikes, going dancing, listening to music. But sometimes there are surprises – unusually inventive things."

"The chairman of the art department came by one day and said it was an interesting problem, because you had to steer a middle course between obscurantism and the cliché."

That, says Bigelow, is generally the case with signs. "If you try to make the sign too hermetic, too avant garde, too unique, then no one will understand it. But if you make it too everyday, then it won't have any force or excitement. In writing systems, symbols must be clear to everyone – but each generation of

"IF YOU COULD USE COLORS TO DEPICT LANGUAGE, FOR EXAMPLE, WHAT COLORS WOULD VOWELS BE? AND WHAT TEXTURES WOULD YOU USE FOR CONSONANTS? EVERY YEAR I DO AN EXERCISE LIKE THAT."

artists and designers has to add its own insights."

HYPERMEDIA

Bigelow came to his insights through a combination of academic and practical experience. He was a working graphic designer in Portland, Oregon, and had already studied calligraphy and typography formally, when in 1976, he decided to put poetic word to page. It took two years, he says, to set "The Crow Captain's Song" in metal type and print just 100 copies by hand.

Partly, Bigelow remembers, it took that long because he spent a lot of time experimenting with how the form and style of the typography affected the tone and meaning of the content. "Even using one font," he recalls, "setting a poem in all capitals or lowercase or italics could have a great effect on the perceived mood and meaning of the text."

Experimenting with metal type may have been slow, but it taught Bigelow a lot more about letterforms and layout—many of the stylistic rules we use even today in typography are the result of centuries of experience in working with wood and metal type, he notes.

Bigelow's interest in type was deepened, and he soon found himself enough

of an expert to receive regular invitations to teach typography at local universities and museum schools. Then, in 1982, while teaching at the Rhode Island School of Design, Bigelow began to notice the appearance and rapid evolution of laser printers.

Capabilities that had previously cost hundreds of thousands of dollars were beginning to appear in machines costing a few tens of thousands. It was obvious that computers were about to make a big impact on the hitherto very traditional world of typography.

Bigelow had never been a programmer or much of a mathematician up until that point. But he decided that computers were tools he needed to master. Mostly through summer and extension courses at Harvard, he picked up the necessary starting skills.

He also received an invitation to teach at Stanford, and at almost the same time, a prestigious and substantial MacArthur Fellowship (an unrestricted grant of up to hundreds of thousands of dollars given by the MacArthur Foundation to individuals whose work or potential the Foundation thinks might have significant social impact).

Bigelow says his own interests are turning more from what he calls the

atomic level of letterforms to the molecular level of layout.

"The concept of structured documents and hypermedia essentially create an opportunity for graphics designers and typographers to rethink how language is communicated. I'm not actually coding up new kinds of structured documents, but I'm trying to find out more about what things are and what they might take to implement—and to work with the implementers and nudge them in the right directions."

In the 1990s, Bigelow predicts that this type of pre-design will be even more important, because more day-to-day decision-making will be done by the system and the software.

"The 1970s research environment was one of interactive computing. In the 1980s, 70s research was commercialized. In the 90s, I think we'll return to the concept of doing things automatically."

"We'll see systems that take data and make charts automatically, we'll see programs that don't have large manuals and a large number of commands, and we'll see that you just turn on and start typing."

Steve Rosenthal is Electric Word's US West Coast correspondent.

GED — "WITH A GEE, NOT A JAY" — PEARSON



By Andrew Joscelyne

"That largely means covering everywhere outside the Americas—plus handling clients such as Philips and Olivetti in Canada, since they're originally from Europe," explained Ged (pronounced Jed) Pearson recently on his way back to the UK from Madrid via Paris.

Such capital-hopping from an OEM to an end client in a public administration is nothing new to this mid-Atlantic-vowelled Englishman. It follows a highly mobile life of job-hopping too.

"When I finished working on my PhD at Manchester, I thought: 'How long can I keep living on a grant?' So I took an 'MBA' at Cranfield and landed my first job—production manager at Mars."

From macromolecules to chocolate bars might sound like a mighty shift down in complexity, but it doubtless helped ease Pearson's fears about subsistence living.

He moved into marketing after a while and got a taste for handling client-based operations. After a two-year stint as a management consultant with an engineering company in Geneva, he joined Black and Decker as development manager and "gradually started returning to the world of technology that I had known before in a purely theoretical way."

INTERNATIONAL HI-TECH

Working for the tools company also gave Pearson an appetite for international operations. "Officially, I was in charge of development for the Europe International Group of the US-based company. I actually got into handling fiscal problems for it and ended up a specialist in three-tier

taxation—there are only about 50 people in the world who know about it."

From then on, it was big outfits all the way, homing in on the world of advanced technology in an international context.

"I did some marketing for the Special Projects Division at Marconi, the UK electronics firm, and then handled major accounts for FPS, who were into parallel computing developments. Then, before joining Microlytics, I worked as European Regional Director for Proximity."

Pearson had finally entered the relatively small but dynamic world of computational linguistics applications, which was beginning to make such an impact on the spread of wordprocessing software. Providing spellcheckers and thesauri for the multilingual market, these companies vied for OEM clients such as Ashton Tate, Claris, and Microsoft as they began to localize their software in Europe.

It just happens that Proximity Technology's major competitor in the field is Microlytics. Apart from what seems a congenital need to change his work venue every two years to keep on his toes, what brought Pearson over to Microlytics earlier this year?

"When Proximity got taken over by Franklin, the earlier apparent interest in European languages fell off. I'm particularly focused on Europe as both a market and as a linguistic area. I just felt there was more to be done here."

His current employer entered the langtech scene after CEO Mike Weiner had left the prestigious technology nursery at Xerox PARC with a license to use the linguistic and compression techniques developed there—and a US\$400,000 handout to get started.

**FROM MARS
BARS TO
MICRO-
DICTIONARIES**

"International" is the first word that springs to mind in describing Ged Pearson. This solid state physics PhD-turned language technology executive not only works for the international division of natural language products company Microlytics Inc. (Rochester, NY). He is actually its vice president "international," taking care of its operations in "the rest of the world."

Today, the firm's handheld WordFinder thesaurus, developed by SelecTronics (see News You Can Use, page 8) of which Microlytics has a 30% share, is selling steadily. It offers a range of linguistics products in turnkey implementations for both soft- and firmware.

Pearson now splits his time between an endless quest for those interesting new applications being dreamed up by penniless kitchen-table developers and presenting what Microlytics makes from them to end customers.

"We go where the expertise is and then license it from them. There are hundreds of developers out there putting together also-ran products," he explains. "Our job is to home in on the good one and package it into something that customers want. It's like taking a Ford and turning it into a BMW."

WISH LISTS

With language technology a supply rather than demand-led market, no serious research has ever been done on what sort of language technology the public wants. Nevertheless, as more and more people handle language-based tasks via computers, what Pearson calls "wish lists" are beginning to make themselves felt.

"Ninety-nine per cent of them would put free-text translation, or possibly a universal speechbox, as the ultimate horizon—the candy at the top of their wish list. What Microlytics can give them is a pair of stilts to let them stretch their horizon a bit further, so they see things a bit differently and suddenly realize their

wish list can become a reality, but in another way."

Take the handheld WordFinder. One obvious market for this might prove the educational market, at least in Europe. "English is clearly the *lingua franca* of Europe, if not the world. Look at the way certain European countries are boosting programs in teaching English, even after they've apparently been doing it for years."

"A product like WordFinder with an English glossary, will offer a range of utilities in a learning context. At the simplest level, it lets you play with words, then it helps you beef up vocab when you've got a few spare moments waiting in a queue or sitting in a train. At yet another level it can help rapid communication with other-language speakers in a multilingual context. It could even offer sample sentences for word usage.

"The next step, which should be included in a new product out soon, will be a sort of reverse dictionary—you enter a concept and the dictionary will provide you with the word in a language for that idea. This will be a major advance in wordtech for all sorts of users."

MISUNDERSTANDINGS

To those who think such pocket-sized technology verges on gimmickry, Pearson says there has been misunderstanding in the market about what a spellchecker is.

"A lot of people in the computer business are confused about language applications. They've helped spread the idea

that a spellchecker should be a grammar checker, and that if it isn't it can't be used for anything.

"We feel that there is a clear demand for an autonomous wordbox like WordFinder which could help schoolkids as much as, say, office staff. Once people understand the distinctions between these technologies, they'll suddenly see the light and get interested. Mixing it all together in some glorious do-anything language packet will get us nowhere."

So once your company is into high-level compression techniques, with bidirectional searches along with free text and structural scans, other handheld applications begin to emerge naturally.

When Pearson is not travelling, he's probably mugging up on transputer technology. "One of my special interests is in applying parallel computing to machine translation. Ever since my days with FPS, I've enjoyed a professional relationship with transputers, and I'm convinced that parallel processing is an interesting way to handle machine translation.

After all, human translators manipulate four or five parallel strains of thought including logic, word order, and vocabulary in their minds at the same time. Current sequential processing seems doomed to failure as far as machine translation is concerned.

Maybe Microlytics has something cooking in the field? Is there a natlang parser for English hanging around waiting for a parallel application? "Just an item on my wish-list," smiles Pearson before catching another plane out.

PEARSON SPLITS HIS TIME BETWEEN AN ENDLESS QUEST FOR INTERESTING NEW APPLICATIONS BEING DREAMED UP BY PENNILESS KITCHEN-TABLE DEVELOPERS AND PRESENTING WHAT MICROLYTICS MAKES FROM THEM TO END CUSTOMERS.

MURIEL VASCONCELLOS: MT'S GREAT SURVIVOR

By Andrew Joscelyne

For you, the mid-1950s might conjure up a cozy technoscape of scratchy Buddy Holly 78s and Brylcreem. But for misty-eyed veterans of the American machine translation scene, it was a golden age, when government agencies were doling out dollars aplenty to researchers at universities throughout the land.

Never-never-land? Ask Muriel Vasconcellos, now head of Machine Translation at the Pan American Health Organization (PAHO). She was there. In 1956, she personally typed the proposal from Georgetown University to the CIA, which led to a million-dollar grant for the development of a Russian-English MT system.

Officially, Vasconcellos was working in an administrative capacity. But her natural curiosity for what was going on brought her close to some of the founding fathers of the discipline, and she's been carrying on the good work ever since.

LIFE BEFORE ALPAC—AND AFTER

"There were lots of ideas around at the time," she remembers. "There were at least three separate Russian-to-English projects going on while I was there. Apart from the main General Analysis Technique (or GAT) research, Paul Garvin was working on his FULCRUM analysis project—plus there was another team working on what was called code-matching techniques.

"For five years, I was assistant to Leo Dostert, who was the architect of the simultaneous interpretation system used at the Nuremburg trials. At Georgetown, he would brainstorm ideas every Friday morning and then get people to work on a project. Anybody could work on anything they wanted to, so there were people doing stuff on Chinese, Slavic languages, and French.

"Dostert was very much attuned to using corpora—real texts—so he started up an English-to-French MT system



"I'D LIKE TO BUILD UP THE MT AWARENESS OF INDEPENDENT TRANSLATORS, SO THAT REAL MT WILL BECOME A GENUINE OPTION FOR THEM. THERE IS NO QUESTION THAT THE MAJOR SYSTEMS OVER THE NEXT FIVE YEARS WILL BE PC-BASED, AND IT IS MANAGEMENT RATHER THAN TECHNICAL QUESTIONS THAT ARE GOING TO BECOME IMPORTANT"

based on a twin-text corpus of biochemistry data. Above all, though, Leo was a great publicist for the MT cause.

"We were a regular nursery for computational linguists. There was Peter Toma, with the four-language translation system he had programmed at night at the company he worked for in La Jolla. He came to Georgetown to work on morphological analysis and stayed for two years. Four years after he'd left, the first version of what came to be Systran came out."

Then disaster struck. Muriel Vasconcellos was still at Georgetown in 1966 when the ALPAC blow fell. This notorious "no future" evaluation of the prospects for MT suddenly spelled the end of public funding of GAT.

In fact, the GAT system had become operational in 1964 at Atomic Energy Commission facilities both in the US and Italy, and it continued to be used over the next twenty-odd years to provide rapid raw translation of Russian physics documents. However, any idea of further development was deep-sixed, the Georgetown research team broken up, and dust settled on the piles of punch cards.

Vasconcellos, though, struck lucky. She soon found herself working for the only non-military public organization in the Americas still prepared to put money into MT: Washington-based PAHO, the Pan American Health Organization.

In 1975, PAHO asked Tabor Corp., the research company that now markets Globalink translation software, to perform a feasibility study on how to reduce the vast costs of producing all its public-health-related documentation in English and Spanish. The result was a project, begun in 1976, to develop an MT system using PAHO's onsite IBM 360. And a rocky road it proved to be.

NOT JUST RAW BUT BLEEDING

"I was the PAHO staff member," recalls Vasconcellos, "with the glorious title of 'terminologist and coordinator' of the project. At first, we used a team of consultants who had already worked on the old Georgetown project, including Allen Tucker and Bedrich Chapulka.

"Bedrich had been a dictionary coder, and he arrived with an image of the dictionary record in his memory. Since he had never worked on the algorithm, he set himself to work backwards, thinking up the rules that would be needed to access the information coded in the dictionary."

Three years later, a first Spanish-English algorithm was in place. Written in PL/1 and accessing the 48,000-word dictionary, it turned Spanish input into raw English text. Correction: not just raw but *bleeding*, apparently.

"When it came to be evaluated, this system was frankly a dog's dinner. We were about to give up the ghost and see if something like Systran could be used. But developing new dictionaries would have been as expensive as continuing with our own work. So I asked Yorick Wilks, who had been working on MT at the University of New Mexico, what he thought. He

figured it could be fixed – and he was the first to really encourage us to use what we had."

So in an attempt to beef up SPANAM, as the system was called, in 1979, PAHO hired Marjorie Léon, a computational linguist, to work fulltime on development. For Muriel Vasconcellos, Marjorie Léon is the "real architect" of SPANAM.

"Marjorie is a brilliant computational linguist. She managed to streamline the whole thing. For example, we had been left with a full-form dictionary – which meant that any conjugated verb form in Spanish was displayed as unknown, entailing endless dictionary updating."

"Within a month of arriving, Marjorie had written a morphology module to process the 52 forms of the source verbs. What I learned from her was that you could take something pretty basic and use what you had without wiping it out and starting from scratch each time."

Since then, SPANAM and its sister program ENGSPAN, which translates in the opposite direction (and was developed with a two-year grant from the US Agency for International Development in 1983), have gone from strength to strength, offering the translation of many different text types – a "try-anything" system if ever there was one.

"People were continually telling me that MT couldn't really work. So I accepted the challenge and decided to find out just what we could do over a given period." The result proved that 80% of the English documentation could be processed by the machine and 60% of the Spanish, using scanned or e-mailed input text.

"Less than 1% of the words in the documents could not be found, out of one million words per year. Where previously we were just one component of the PAHO Language Services department, we've now proved we can use machines to do the main job. The tail is beginning to wag the dog!"

COLLABORATION A MUST

The encouraging results of the eight years that Vasconcellos has devoted to promoting MT at PAHO have borne other fruit. There is, for example, a project in the air to work with the 13 centers of the pan-American Consultative Group for Agricultural Research (CGAR) in a consortium of public sector agencies interested in exchanging public health information.

One plan is to co-develop an English-to-Portuguese module. Another is to get funding to add an English-to-French module to the PAHO system. Muriel Vasconcellos smiles knowingly: "I know the world needs another French-to-English system like it needs a hole in the head – but ours might just be the best around."

Vasconcellos's wide experience of the ups and downs of MT-land has taught her how necessary it is both to generate solidarity within the MT community and educate laypeople on the outside.

She is particularly vehement about the need to combine resources via internationally accepted standards for docu-

ment structure and dictionary entries. "Right now," she says, looking back on ALPAC and the struggle to get SPANAM off the ground, "MT people need mutual support. We should stick together and try to exchange much of the effort that's going into building machine dictionaries around the world."

"It's so labour-intensive that it's ridiculous to have different MT vendors building up what amount to very similar dictionaries. Look at the way Japanese MT teams get together to work out mutual problems. We're simply going to have to build some basis for understanding beyond mere gossip about what 'the others' are doing."

"A combined effort on lexical data could still leave each system free to do its own thing at the parsing and semantic processing levels."

ALPAC AFTERBURN

Apart from her work with PAHO, Muriel Vasconcellos has returned to her old stamping ground Georgetown University, giving courses each year on Machine Aids to Translators at the Department of Interpretation and Translation.

She also chairs the Committee on Translation and Computers in the American Translators Association.

"I'd like to build up the MT awareness of independent translators, so that real MT will become a genuine option for them. There is no question that the major systems over the next five years will be PC-based, and it is management rather than technical questions that are going to become important."

"If we're going to have a bunch of \$500 systems on the market, what'll happen to the real systems? We're going to have to educate people to understand the difference between them."

In spite of her successes at PAHO and the radical improvements that have affected user interfaces and the general technological environment for machine translation over the years, Muriel is still haunted by the stigma that ALPAC left on the MT community.

"MT is not necessarily getting a better press now than it did just after ALPAC," she explains. "There's still not a cent of public money around in the States for MT. When people at a cocktail party ask you what you do, and you say you work in MT, they invariably come out with 'Oh I know all about that – they did a study about it, didn't they, and found out it can't work?'"

And she's sick and tired of hearing the same old jokes about dumb machine-made translations of the "Spirit is willing, flesh is weak / the vodka is alright but the meat is off" variety, flashily updated to the eighties, with the output coming from some futuristic automatic telephone interpreter.

Muriel Vasconcellos clearly feels there is still a long way to go. "Trying to get rid of ALPAC's fallout," she concludes, "is like pushing jelly up a hill." Maybe she should show the Cassandras just how ENGSPAN can translate that evocative little simile.



THIS ISSUE, ELECTRIC WORD PLUGS INTO

Cyberspace

By Jules Marshall

"The phone system, when coupled with computer technology, permits a person almost anywhere to plug into a world of information," said Charles Brown, CEO of AT&T.

There are over 4,000 online databases to choose from, covering between them every imaginable whim of the most ardent info junkie.

"Those in rural areas now have access to information heretofore available only to those who lived in large cities," he continued.

Yet Electric Word has been waiting since March to get a new phone put in by the Dutch phone company.

"Businesses can operate and service equipment in distant places. Shopping, travel arrangements, banking and other business transactions can be made by remote control," he went on.

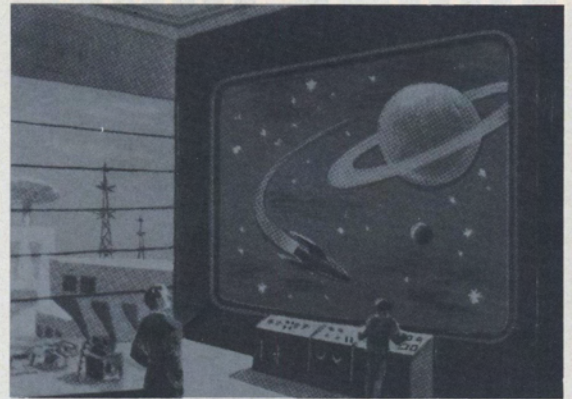
240,000,000,000 bits (or 46 million copies of EW) of information flow around America's networks every second.

"Just around the bend is an information network that would increase the range of perception of a single individual to include all the information available anywhere in the network's universe," he concluded.

The world's great libraries are doubling in size every 14 years, yet online users still need a PhD in patience to get access to the information they want. Whole countries remain closed because of inadequate phone systems.

"Cyberspace. A consensual hallucination experienced daily by billions of legitimate operators, in every nation... A graphic representation of data abstracted from the banks of every computer in the human system. Unthinkable complexity. Lines of light ranged in the nonspace of the mind, clusters and constellations of data."

("Neuromancer," William Gibson, 1983).



W

What AT&T's CEO Charles Brown is essentially describing here is Cyberspace, sci-fi author William Gibson's vision of an artificial, or "virtual," universe in which data is stored and manipulated.

What's special — and not for the squeamish — in Gibson's world is that his characters get onto a Cyberspace network by interfacing their brains directly with the virtual computer-generated world, bypassing the unreliable ("meat") eyes, fingers, mice, modems and phone lines that we are still forced to use.

And what's relevant about Gibson's world is that the tools to create Cyberspace are already here. Computer-generated virtual reality offers hitherto unimagined scope for data representation and access. Neural networks, network transparency software, cheaper memory, faster processing speeds and ISDN — the ganglia of the newly wired global consciousness — are the other extra-corporate technologies. And research into nerve-computer interfaces is already offering the possibility of direct mental access to this world.

Even without the warmware/hardware interface, the implications of such a network for human thought, art and technology are impossible to guess. The more enthusiastic observers are suggesting that we are on the eve of an infotopia to make the achievements of the Renaissance look modest.

But will the bloody phones work?

The problem is that we are just getting round to replacing a worldwide telecommunications network little changed since the days of Bell, and largely administered by a number of state-controlled monopolies, the "PTTs."

Technological change and consumer demand have overwhelmed the monopolies' organizational structure. And with the global telecoms business worth between US\$300 bn and \$350 bn, where the monopolies survive, they are digging in their heels.

TALK GLOBAL, MEAN LOCAL

In the early-80s swing away from the smothering arms of the "nanny state," Japan, Britain, Canada

and Australia all privatized their public carriers, at the same time as introducing competition of some sort. In Europe, Britain's lead has been slowly, and only grudgingly followed. And with *that date* looming ever closer, the European Commission is prodding its member states, who spend 750 bn ECUs per year on transmission and switching equipment, to liberalize their telecoms.

Even so, there are other contractual and technical barriers to competition and efficient transnational service. For the data communications sector, the result is a nightmare of red tape and barriers to transnational communication, a Byzantine billing system (charges can be by fixed fee, connect time, per search, rental, and combinations of the above) and no real standards for logging on, searching or logging off.

Add to inconvenience — unreliability. A report this year showed that almost a quarter of all online calls via public data networks (PDNs) in Europe fail.

"Public data networks are aimed mainly at small and medium-sized organizations which usually have neither the resources nor the need to invest in telecommunications staff specialists and leased circuits," said Harry Collier, executive director of the report's compiler, EUSIDIC. They desperately need a strong dose of user-friendliness.

Despite the frustrations, investment in telecoms hardware is soaring, and online information is gradually becoming more accessible — though not without hiccups. Some examples:

- The International Packet Switching System interconnects different data networks and acts as a gateway between those of different countries. Unfortunately, to gain access to the IPSS, you need a Network User Identifier (NUI) password, which is only usable in its country of origin.

There are still more telephones in greater New York than in the whole of Black Africa.

- Several companies are trying to integrate national packet-switching networks. Infonet and EasyNet, for example, offer end-to-end accounting and technical support, a gateway to up to a thousand business information systems worldwide, and even translate word searches into host languages – all for a fixed fee at a single billing point.

- New, automated, online interfaces can be programmed to perform everything from logging on to logging off, carrying out predetermined searches and downloading the results onto your microcomputer.

- Increasingly sophisticated natural language searches of online databases can be conducted. Dow Jones's "intelligent news service" uses a parallel processing computer to conduct online searches of 170,000 articles from 185 publications in natural English, while Reuters is soon to add a Topic Identification System which classifies news items into 700 topic codes and 17,000 company codes with more than 95% accuracy to its live news wire.

Competition in telecoms has produced a worldwide surge of private and public investment. Data transmission equipment such as satellite teleports, signal boosters and fiber optic cable, and huge digital exchanges are being built – mainly by and for the public telecoms carriers. In addition, there are increasing numbers of private carriers being used by companies, universities and the armed forces.

works will not be evenly spread out across countries, but concentrated in those areas offering highest returns – the business world, where demand and financial muscle are greatest.

"Technological development is not an autonomous process that shapes the socio-economic order of society, but responds to the hierarchy of social needs as defined by the existing socio-economic order," wrote Cees Hamelink (Transnational Data Flows in the Information Age). "In preparing for the information age, it is not the technology that's the problem, but the quality of the definition of social needs."

The inequalities which already exist – for example, there are still more telephones in greater New York than in the whole of Black Africa, and if you want a phone in India, you'll have to join a million-strong queue – will only become worse as services become more sophisticated. Regulation requiring the PTTs to continue to operate a "universal" service is likely to cover only the basic services and exclude the growing number of premium electronic business services which will provide much of

"The new source of power is not money in the hands of the few but information in the hands of the many."

"The global market for news, money and data that now exists," said Walter Wriston, ex-CEO of Citibank, "has fundamentally altered the traditional power of governments and central banks to control events."

Professional world-watcher Peter Schwartz pointed out that in 1986 there were US\$87 trillion in currency transactions – nearly triple the amount two years earlier and equal to several times the Gross World Product (it's now \$199 trillion).

This enormous flow of data, Wriston argued, has created a financial "Information Standard which has replaced the Gold Standard and the Bretton Woods agreement ... The electronic global market has produced what amounts to a giant vote-counting machine, which conducts a running tally of what the world thinks of a government's diplomatic, fiscal and monetary policies."

If you're plugged into Cyberspace, *everyone* can hear you scream.

The topography of the information highways of tomorrow will not be modelled on traditional telephone networks, which developed in response to individuals'

need ... The real driving force will be the pressure to link the computers that handle rapidly growing flows of business information, leading to more concentration, not less.



BIG NETWORK, BIG PROBLEMS?

Liberalized markets, technological progress, new services – does that mean that telecoms paradise and online heaven is just around the corner? Not quite.

A recent report by the OECD suggests that the more sophisticated telecommunications becomes, the more it will become concentrated in established business centers at the expense of the periphery; the supply-side revolution triggered by technological innovation will in future be increasingly demand-led.

The topography of the information highways of tomorrow will not be modelled on traditional telephone networks, which developed in response to individuals' needs, said the report. The real driving force will be the pressure to link the computers that handle *business* information.

In a liberalized, competitive environment, net-

the future growth.

Joan Spero, senior VP at American Express voiced similar fears last year: "Deregulation may make it easier for private entities to stifle competition by cartelizing their activities, resulting in the emergence of closed shops of private proprietary networks for internationally offered services."

The OECD concluded that, left to the market, the natural tendency of the information economy would be to create ghettos of privilege in which the data-rich would continue to get richer.

THE GLOBAL SLOT MACHINE

Not all are so pessimistic. On the contrary, some see the new telecoms order as having brought increased, not decreased, democracy to the planet – at the expense of entrenched state and private power.

As infoguru John Naisbitt put it in *Megatrends*:

Enterprise Culture At The Brit

By Richard Evans

Illustrations by Henri Lucas



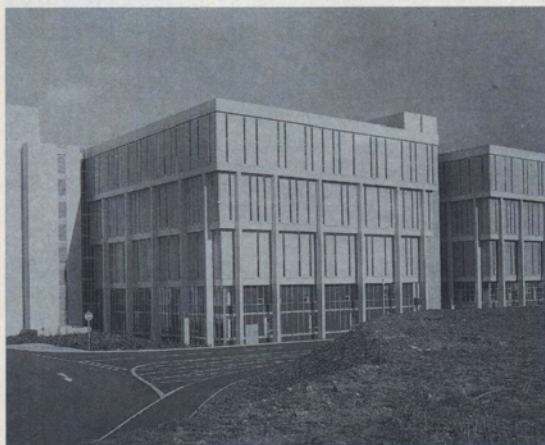
British Library Where Online Is

The Bottom Line

There was a time, not so long ago, when entrepreneurialism was considered as un-British as complaining in

restaurants or touching people without saying sorry. In the Thatcher decade, however, just as garlic-eating and cheek-kissing have reached epidemic proportions, so the Enterprise Culture is back in style. Not since the golden days of the Victorian Self-Made Man has money-making been held in such high esteem in the Sceptered Isle.

With profitability as Perfidious Albion PLC's much vaunted new virtue, even the most venerable publicly-funded institutions are being told to look to themselves, not the government, for money. The British Library is one such formerly unworldly bastion of culture, now making its debut in the marketplace. Once the stuffiest of institutions, the Library is dusting itself down and shaping up as a shiny new warehouse of hightech info.



Document Supply Centre at Boston Spa.

Richard Evans reports on this phenomenon from the wilds of North Yorkshire, where the British Library is responding to government exhortations to pay its own way by selling BLAISE, its very own online information service.



Stuart Ede, director of National Bibliographic Services at the British Library.

MALLTOWN THRIFT

SBLAISE is already paying for a growing proportion of the British Library's bills. In 1988, the Library supplied over a quarter of a million records online to customers. Revenue from BLAISE now comprises a third of the Library's total revenues, and that percentage is growing. Meanwhile, the Library's traditional, paper-based publishing activities are in decline, and its future undoubtedly depends on the success with which it markets its electronic services.

The British Library, Europe's largest institution of its kind, houses more than 1,000 miles of shelves with some 23 million books, periodicals, theses, maps, patents, and other documents. Now it is transforming itself into a hightech information "warehouse" with impressive new online links to users.

Academics, research scientists, librarians, and business executives from as far away as Los Angeles and New Delhi regularly plug into the library via modem and microcomputer in order to access a variety of online information services.

"Our installed user base is growing by between 50 and 100% per year," says Stuart Ede, Director of the Library's National Bibliographic Service. "It is growing rapidly and it is growing worldwide." During 1988, the Library supplied over a quarter of a million records online to customers.

Accustomed to the restraints of '80s corner-shop thrift and confronted with the commercial realities of the new enterprise culture, the Library has searched for ways to fund the maintenance and expansion of its prodigious collection, second in the world only to that of the Library of Congress in Washington DC.

Like the Library of Congress, the British Library is proving that its vast information store represents a readily saleable commodity.

And like the Library of Congress, the British Library is proving that its vast information store represents a readily saleable commodity. Organizational restructuring at the Library has created new marketing and consultancy divisions.

BLAISE A TRAIL

At the heart of the Library's online information system is the Document Supply Centre (DSC) at Boston Spa (North Yorkshire). Incongruously set among the limestone-shingle cottages and rolling North Country pastures, the concrete, bunker-like complex of the DSC houses a DEC VAX-based computer / telecommunications "nerve center" which connects users to BLAISE-LINE (the British Library's Automated Information Services), encompassing eighteen distinctive online databases made up of some 8.5 mn individual records.

These databases include comprehensive catalogs of government publications, international publications housed in worldwide libraries, antiquarian material, and a complete and descriptive list of all documents acquired by the Library over the past two centuries.

Also on offer is the catalog of the Science Reference Information Service (SRIS), the world's largest single collection of books, periodicals, patents, and other documents pertaining to all areas of science and industry. An agreement with the huge OCLC university libraries online information service in the USA also allows British Library online users in the UK and Ireland to access that vast information resource at the price of a service fee plus local telephone call.

BOOLEAN TRANSFORMATION

BLAISE-LINE offers the opportunity to sort through enormous amounts of material in minutes, which would have previously required either a trip to the library itself or a long, complicated chain of letters and telephone calls.

User-friendly software allows any number of Boolean logic combinations to narrow down the field of search, by name of author, date, or description of subject or title. Specific items can also be searched out by ISBN, Library of Congress number, or old Dewey decimal heading.

Machine-encoded Boolean logic has transformed the way libraries catalogue their collections as well as how people use these catalogues.

"Before, if a title had been misplaced in an old alphabetical – and paper-based – catalog, or if words in the title had been inadvertently mixed around, there wasn't a chance in hell of ever finding it again, and it was lost forever," stresses Joyce Butcher, the British Library's Director of Acquisitions Processing. It is her job to oversee the never-ending work of converting library catalogs into machine-readable form.

"Neither would you know whether to look for, say, Dudley, Lord of Essex, under the alphabetical heading Lord, Dudley, or Essex," continues Butcher. "But today you can store and retrieve data

in ways that are not preconceived." With BLAISE-LINE, someone interested in Dudley, Lord of Essex, could complete a search, via Boolean logic, by combining all three keywords in either "and" or "or" relationships, and thus access every title available on the topic within seconds.

Of course, all this costs the user good money. But despite the Thatcherite Zeitgeist, vestiges of such stuffy old notions as "collective consciousness" and "public service" still linger at the British Library. And it retains a genuine wish to disseminate knowledge pure and simple.

Hence, BLAISE-LINE is more bank-account-friendly than many other online information services. There is a re-cap facility that allows you to review, offline, the steps through which your search has taken you. There is also quite a generous browse facility that allows you to look over all

the titles you have already called up. While doing so, you are charged on a time-only basis.

DIGITAL DELIVERY

Most of the information accessible via BLAISE-LINE consists of descriptive catalogs of documents; the documents themselves have not been converted into machine-readable form. So what good does it do British Library users halfway across the world to get the titles of documents they're looking for if they can't access the documents themselves?

Plenty. The Library is developing other electronic transmission routes for the rapid delivery of documents ordered online. In the days before BLAISE-LINE, customers requested specific documents by physically consulting the paper catalogs and by mailing in written requests or telephoning. All this took lots of time. Today, the DSC in Yorkshire is connected to London and the world via British Telecom's Megastream packet-switching link. Megastream comprises 32 distinct transmission channels, each able to carry 64 kilobits of information.



Archivists locate documents for fax transmission

"Our installed user base is growing by perhaps 50 to 100% per year," says Stuart Ede, Director of National Bibliographic Service at the British Library. "It is growing rapidly and it is growing worldwide."

Much of this massive information capacity is not yet being used, either for online transmissions or voice communication, although this should change over the next five years. The idea is to use the spare capacity for the transmission of documents from the supply center to the customer by means of high speed, high quality, Group 4 digital fax machines, which are already on the market.

"Group 4 fax machines are very expensive right now, but prices should fall by a factor of at least ten within the next few years," predicts Stuart Ede. "Once that happens, companies will buy them, and the image quality is so good that we can transmit even highly detailed diagrams or portions of maps with virtually no information loss."

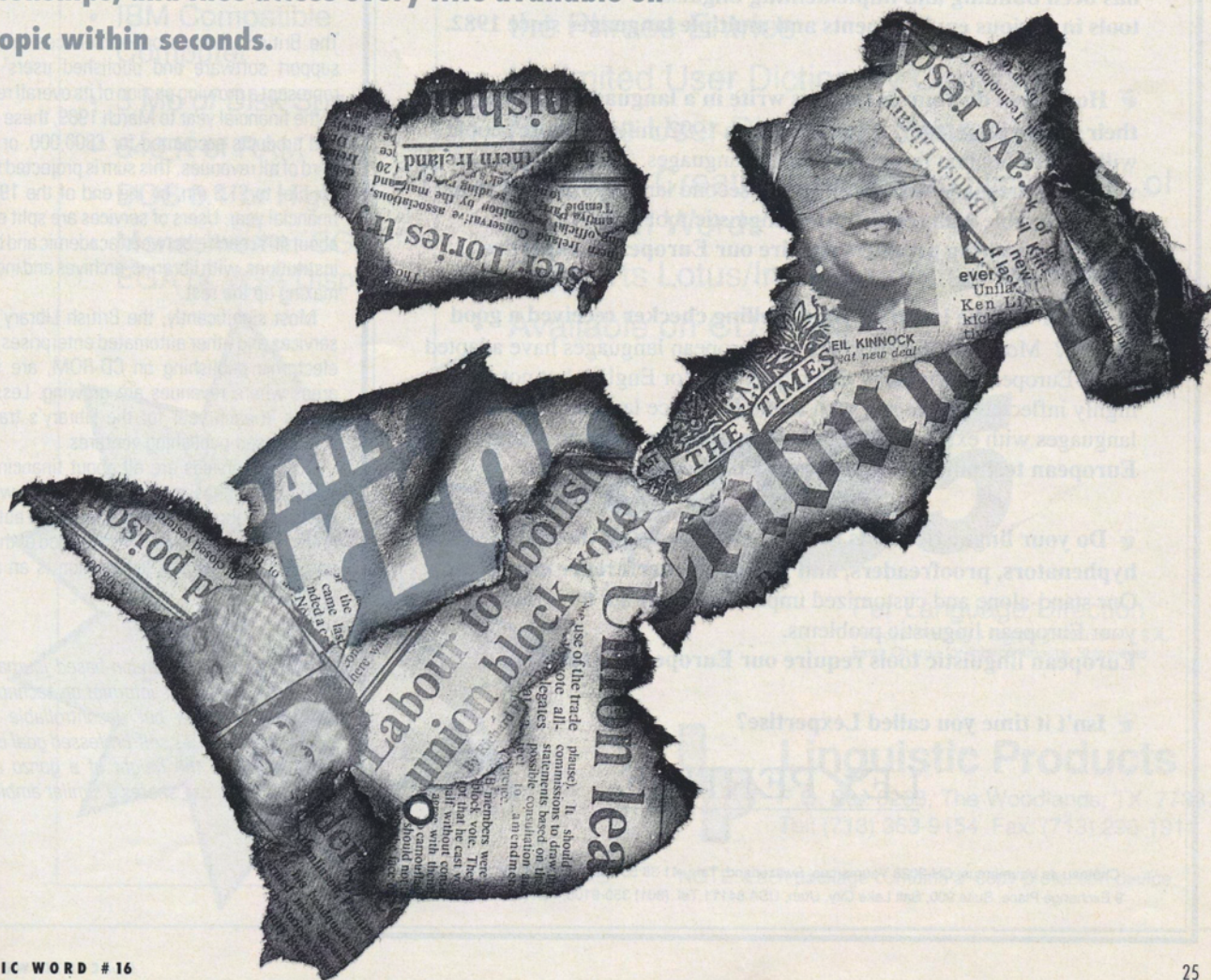
It is far more sensible and cost effective to transmit documents by Group 4 fax to paying customers, Ede points out, than to spend a fortune keying in, optically scanning or otherwise digitizing materials few people will ever need to access quickly. In fact, the British Library acquires an average of six shelf-miles of new documents each year. At that rate, even a hugely enlarged staff would never be able to cope.

With skilled and energetic archivists at Boston



Archivists at Boston Spa

With BLAISE-LINE, someone interested in Dudley, Lord of Essex, could complete a search, via Boolean logic, by combining all three key words in either "and" or "or" relationships, and thus access every title available on the topic within seconds.



Spa, the entire process of online request, physically searching the shelves and transmitting documents by fax to the customer can be accomplished within two hours. Often, it can actually be done in less time than that.

BLAISE-LINK, BLAISE-RECORDS

Two other online services provide additional information to Library users worldwide. BLAISE-LINK, a specialist bio-medical service, links remote users to the British Library's huge research catalog as well as to the database of the National Library of Medicine in Washington DC, the largest of its kind in the world.

On BLAISE-LINK medical researchers, doctors and students can perform Boolean logic searches through a gigantic catalog of bio-medical documents from all over the world. They can also re-

ceive explanatory abstracts of many papers online, helping to decide if the entire document should be ordered up. As with BLAISE-LINE, this information can then be consulted, printed out, or downloaded and saved on disk.

Another service, BLAISE-RECORDS, is of special interest to libraries and archives. With BLAISE-RECORDS, one can consult the British Library catalog records for the raw descriptive data whereby documents themselves are cataloged. For instance, a librarian in Sydney, Australia, sits down next to her computer terminal with a great stack of books recently acquired by the local branch library for which she works.

She is faced with two choices: either key into her PC all the descriptive data needed to make up a detailed catalog entry; or purchase the data from the British Library's machine-readable catalog if the books concerned are held in the Library's col-

lections. If a book is written in English, the chances are that it is already there and cataloged. But the Library's collections also include many foreign-language documents as well.

The uninitiated may be amazed by how expensive it is to put together a machine-readable library catalog. In making a single entry, our librarian in Sydney has to key in the title, then look through the opening pages to see if there is a descriptive subtitle. She must enter the number of pages, and look through the book to see if there is a preface or introduction, and enter this information.

She has to measure the book's dimensions, leaf through to see if there are illustrations, and find the publisher, location, edition, and date. If the document in question is a periodical or an unpublished thesis, then the task is even more time-consuming.

Cataloging can cost anywhere between \$6 and \$30 per document, with the average somewhere around \$9. Downloading machine-readable catalog records into your own database is obviously going to save libraries both time and money. One major UK library estimates that its catalog costs have been halved, from \$10 to \$5, by using the BLAISE-RECORDS service whenever possible.

BLAISE-RECORDS users can locate needed data and then request, at a fairly cheap rate, that these data be sent to them on a disk at the end of each month. If urgency requires, then users can also download the data directly, with the help of BLAISE-RECORDS software which they must first load into their PCs. Both forms of service enjoy rapidly expanding customer bases.

BLEAK FUTURE FOR PAPER...

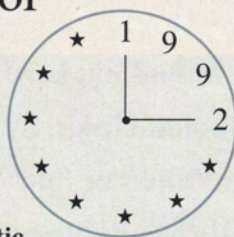
The British Library's online services, along with support software and published users' guides, represent a growing portion of its overall revenues. In the financial year to March 1989, these services and products accounted for £800,000, or about a third of all revenues. This sum is projected to nearly double, to £1.3 mn, by the end of the 1990-1991 financial year. Users of services are split equally—about 40% each—between academic and business institutions, with libraries, archives and individuals making up the rest.

Most significantly, the British Library's online services and other automated enterprises, such as electronic publishing on CD-ROM, are the only areas where revenues are growing. Less money comes in each year for the Library's traditional, paper-based publishing ventures.

"These services are all about financing future growth," emphasizes Stuart Ede, who will direct the British Library's strategic moves in automation during the years ahead. "For the good of the Library and its users, further automation is an absolute must."

Richard Evans is a London-based journalist who began writing about information technology because of a vague but uncontrollable urge he couldn't control. His self-professed goal is to raise IT reporting to the height of a gonzo art form. Gladstone, his cat, shares a similar ambition.

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Does ISDN Really Stand For Innovati



By Brock N. Meeks

Illustration by Ryu Tajiri

Innovations Subscribers Don't Need?

Integrated Services Digital Networks is a telecommunications technology that makes it possible to send and receive voice, data, and image signals simultaneously over existing digital telephone

lines. Instead of separate lines for telephones, computers, facsimile machines, and video displays, a user needs only one ISDN line for sending and receiving all types of information.

The implication is obvious: convergence of computers and communications technology can speed up data transmission and give users more control over information.

Proponents of ISDN hail the technology as a kind of all-purpose "information glue," allowing the world's huge information base to be traversed as easily as a freeway. But to its critics, the wonder-working acronym ISDN merely stands for "Innovations Subscribers Don't Need."

ELECTRONIC NEIGHBORHOODS

As telecommunications and information service technology continue to evolve, traditional providers and new entrants will be able to provide more effective delivery of both new enhanced services and the old basic offerings.

"The continuing evolution of the United States to a service and information-oriented, and more mobile society ... should also continue to stimulate demands on the telecommunications infrastruc-

ture for these more innovative services," says a recent report issued by an ad hoc task force for the National Telecommunications Information Agency (NTIA).

The NTIA Task Force observed that by the year 2000, individuals could be a part of an "electronic neighborhood" connected by a number of alternative telecommunications and information systems combining voice, data, and video communications.

"Additionally, under these competitive conditions, and through integrated services digital net-

ISDN is a telecommunications technology that makes it possible to send and receive voice, data, and image signals simultaneously over existing digital telephone lines.

DECADE OF CHANGE

DAT&T Bell Laboratories President Ian Ross cites the fast pace of change both in technology and in user demands as the driving forces behind the "dramatic change" in telecommunications networks.

"Over the next decade," Ross says, "telecommunications networks will be rapidly transformed in several dimensions: from heavily analog networks to digital networks; from largely copper networks to optical fiber networks supplemented by radio and satellite; from hardware-driven networks to software-driven networks; from closed networks controlled by the service providers to open networks that customers can control and manage themselves; and from networks optimized for voice to networks that integrate voice, data, and image transmission following internationally agreed-upon standards."

Ross notes that information systems have grown to have "immense strategic significance, with the power to transform production economies, relations between suppliers and distributors, products and services."

He predicts that, by the mid-90s, data transmission (machines talking to people and machines talking to machines) might well account for as much "traffic" on AT&T's US telecommunications network as will voice conversations.

Ross envisions an ISDN that brings "intelligence" to various networks in which smart digital switching machines, databases and other computerized systems are updating each other constantly, processing data generated locally, and exchanging necessary information over continental distances.

It is possible that such intelligence could spawn the use of personal "knowledge robots" - invisible software agents that could traverse the globe and bring details back to their commander's fingertips.

Ross calls these "knowbots," and sees the concept as just one being advanced by the increase toward a global acceptance of ISDN.

User control of these intelligent networks, what Ross refers to as "universal information services" will eventually provide "a global telecommunications network that will enable people and businesses to move and manage vast amounts of information in any form - voice, data, image or video - at anytime, anywhere."

By the year 2000, individuals could be a part of an "electronic neighborhood," connected by a number of alternative telecommunications and information systems combining voice, data, and video communications.

works (ISDNs), direct broadcast satellites, terrestrial broadcast subcarriers, or even other as yet unknown technologies, a gifted teacher in California could simultaneously tutor children in Pennsylvania, Florida and Wyoming," the report asserted.

"For businesses, ISDN may achieve a merger of previously discrete voice, data, and video networks and afford greater network control from user premises," the Task Force says. "ISDN will make switching, virtual networking, number identification, and call routing faster, easier, and potentially less expensive. For residential users, ISDN may bring more of the benefits of the information age to the home via modemless terminals, videotex, and new video entertainment options."

Since the double-barrelled salvo of technology

and competition are demonstrating increasing potential for reducing costs, the researchers believe that there is a clear potential for greater efficiency in the provision of communications and information services.

THE FUTURE TODAY?

ISDN today provides the capability to access vast bodies of information, both text and pictures. Doctors in Sweden might assist surgery long distance, viewing a heart valve and reconstructing the tissue electronically on a video screen while consulting with doctors in the United States. A photo editor, needing pictures to illustrate a story on refugees, may compare, instantly, the work of

several photo-journalists who have digitized stock photo files.

In the future, you are likely to be seeing as well as hearing the person you are talking to over the phone, if the prediction by a senior Singapore Telecom official comes about. Speaking at the Asia Telecom '89 conference held in Singapore in February, the official said that most Singapore homes and offices would one day be fitted with "information sockets" that would allow the connection of voice, data, pictures, and text on a single cable.

The same official also said that Singapore was leading the way with the introduction of a basic rate ISDN service last year, which will extend throughout the island state by the end of 1989. In his paper entitled "Application of Modern Technology - the Singapore Experience," he also predicted the rapid proliferation of value-added networks that can process, package, and transport information sought by users for various trade and commercial operations.

For instance, Singapore has operated TradeNet for the electronic filing of customs documentation since last year and expects to have several additional dedicated services operating within the next year, both locally and in conjunction with similar services being developed overseas.

Another example highlighted was the unique Televue service, now on trial in Singapore, which offers a low cost videotex service using Picture Prestel/CEPT standards, combining a telephone link with the return data broadcast over a dedicated VHF channel, providing what is believed to be the first hybrid videotex service in the world.

Probe Research's Bart Stuck maintains that the proliferation of ISDN services will be fuelled by demand from the small-to-medium sized business which would like to have increased digital capabilities "because it's clean, provides flexible networking options, and it allows for growth."

THE DATA DELUGE

ISDN services will also allow businesses and governmental agencies to efficiently access online databases. One US agency waiting for a grand ISDN scheme to emerge is the National Aeronautics and Space Administration (NASA), which is collecting new data at mind-boggling rates. NASA, with some six trillion bytes of information already on hand, or roughly the equivalent of three billion double-spaced typed pages, will, in the next three years, double that amount of data and continue to double the existing knowledge base every two years after that.

The trick to handling this data avalanche is categorizing it *without* adding text. Data will be coming in so fast from future missions that "we don't have enough people in the United States" to augment pictures and instrument readings with text explanations, says James Green, director of the National Space Science Data Center. "The trick is being able to process the stuff on the fly."

"ISDN makes this possible," says Green. For example, during a future mission, the electronic message sent by the camera recording its own location and angle must be automatically translated into a format that corresponds to human language. This way, if years later, a user attached to an ISDN service wants "images of the coast of Maine," the system will be able to deliver the photos based only on the location-in-space data

THE VIEW FROM EUROPE - ISDN IN FRANCE

Andrew Joscelyne

The world's first commercial ISDN venture was dialled up in France's Côte du Nord in December 1987. Called Numéris, the network was extended in 1988 to Rennes and then Paris. And this year, it will be extended to Lyon, Marseille, and Lille. It will have 900 subscribers by the end of the year.

By 1991, business subscribers all over the country will be benefiting from the French policy of digitizing exchanges and transmission facilities originally started in 1974. And anybody who can afford it will have access to the voice, data, and image transfer network.

ISDN is arriving on the French telecommunications scene at a propitious moment. According to national operator France Telecom, online value-added services will expand at a rate of 22% per year up to 1995. Forecasts suggest that 3000 new large business, administrative, and industrial subscribers will hook up to Numéris this year, with a further 20,000 small and medium-sized organizations by the end of 1990.

By 1995, with the completion of the digitization of the national network, the net will finally open its telecoms treasure trove to home users.

Apart from enriched telephone services such as call identification, porting communications between terminals, total call cost display, call transfer to another national number and other time savers, Numéris will also provide super-speed laser-quality Group 4 fax as well as telex and classic or "photographic" videotex.

Numéris will also eventually offer access to other networks, for example, the more expensive public packet-switched Transpac data network, which also carries the famous Minitel videotex service.

Apart from transmitting animated video-quality images, by 1995, French users will be able to share anything from *samizdat* audio-recordings

to holiday snapshots over their telephone lines. France Telecom's strategy for Numéris has been to enter into partnership with potential service developers, financing up to 50% of the proposed applications in an effort to dynamize industrial suppliers. Major clients such as Shell, Philips Service Division, Hewlett-Packard, Bull and Geostock have signed up with telecoms engineering groups such as Cap Sesa and SARDE to stitch together a variety of multimedia, image, documentation, or data applications in an effort to explore the wealth of the technology.

An interesting project in the field of ISDN image transfer is a photo-transfer system exploiting Numéris' power to transmit digitized, compressed, and indexed press pictures. Put together by France's fourth largest picture agency, KIPA, the service, called Image Directe, will zap 200 news pix in three minutes to five major press user groups equipped with PC 386s.

Another application being pursued by large supermarkets as well as the inhouse training divisions of major technology companies is the multimedia service point, whereby image, sound, and text can be integrated into a rapid info system offering users online interaction with full data on anything from product ranges to training needs.

A major client in this sector looks like being the PMU—the French tote—offering all you ever wanted to know about the horses at Longchamps. Sound like one more fancy way of separating you from your money?

And what about the infamous Minitel Rose? Who knows what sexy extras Numéris might bring to the flesh trade in France once everyone is fully plugged in—ears, eyes, mouth—to the redoubtable Numéris network. Stay tuned.

supplied by the craft.

ISDN is already being used to develop a cataloging system to distribute over networks the data deluge that will begin with the planned launch next year of the Hubble Space Telescope. The space-based laboratory is expected to send back enough information each day to fill about two complete sets of the Encyclopaedia Britannica.

Increasingly, ISDN efforts are also being made to handle the onrush of textual information. Several companies are developing ways to sift through information so that users will receive personalized "newspapers" customized to the topics they've selected.

"There are people at work all around the world trying to find ways to filter incoming information—to pick out the parts that are of interest to you," says Tom Landauer, manager of cognitive science research at Bellcore, the research arm of the Bell operating companies. "We're a long way from solving it." But when they do, the final products will be delivered via an ISDN application.

The information age, with its promise to deliver any and all kinds of information anywhere on the globe, seems instead bogged down in a maze of crowded information highways too complex to navigate.

EVERY HOME SHOULD HAVE ONE...

Imagine an ISDN "enhanced service" that comprises a daily customized "newspaper" consisting of a "headlined" fax, waiting beside your morning breakfast table. If something strikes you as particularly newsworthy, you'll be able to flip on your monitor and see a videoclip complete with broadcast commentary. All that can be carried on the same ISDN.

Such residential use is likely to grow from demand for other types of enhanced services that ISDN will make available. For example, as a result of ISDN technology, when a consumer calls Directory Assistance for information, the operator will be able to offer a "call completion" option that automatically dials the number you've just asked for.

Stuck also predicts that residential clients will be attracted by the multiple channels per ISDN line that will be offered below the cost of leasing multiple lines from existing systems.

"People are beginning to identify applications that will require ISDN," Stuck said. He explains that ISDN will have an impact on all industries by providing insurance agents, purchasing agents, sales reps and others with a service called "caller ID," whereby the identity of a caller (or potential client/customer) is shown before the phone is picked up, while simultaneously furnishing the record of the account onscreen at that time.

Another impact that ISDN will have is to reinforce the phenomenon of being able to work wherever the worker desires. For this reason, Stuck

expects "ISDN networks to be transparent wherever you go within the next three to five years or so," provided you get enough communities of interest.

According to Stuck, once that interest is stirred, a profound chain reaction will be initiated that will affect all elements of the data and telecommunications environment and eliminate the "chicken and egg" scenario. "It will stimulate the usage of the Bell Operating Company networks, which will in turn stimulate the use of data services provided by the Enhanced Services Providers."

MULTIMEDIA HIGHWAY OF THE GLOBAL VILLAGE?

The goal of developing a super information highway was brought to light earlier this month in the United States when the Bush administration lent its weight to a plan to fund one. But the task isn't without its hurdles.

To reach the goal of traversing electronic highways as easily as making a phone call, there must be some kind of uniformity, and in the electronic world, there are only minimal standards. Gleaning information from databases requires travelling over networks with what amounts to several different roadmaps—and maybe in different languages.

The worldwide acceptance of an ISDN-based network would solve that problem. However, the compatibility of products—from telephones to video displays—made by different manufacturers is one of the biggest stumbling blocks to widespread acceptance and use of ISDN.

Standards on everything from how information



Imagine an ISDN "enhanced service" that comprises a daily customized "newspaper" consisting of a "headlined" fax, waiting beside your morning breakfast table. If something strikes you as particularly newsworthy, you'll be able to flip on your monitor and see a videoclip complete with broadcast commentary. All that can be carried on the same ISDN.



should be formatted to how fast it should be transmitted are emerging from national and international standards bodies. But because the standards are designed to meet many requirements, they contain numerous options and can be interpreted in different ways. The result: products from different manufacturers are incompatible.

While the outlook appears positive for the international proliferation of ISDN, some telecommunications observers contend that the concept must be redefined before it is embraced in the global marketplace.

Dr. Peter Cowhey, associate professor in the Graduate School of International Relations and Pacific Studies at the University of San Diego, says that while deployment of the intelligent, digital network is almost a foregone conclusion, realization of the original ISDN vision is highly unlikely. Cowhey recently returned from examining telecommunications policy in Japan.

Cowhey says, "If what we mean by the deployment of ISDN is whether the network will be digital and whether it will move toward a broadband capability, the answer is of course that it will happen. If, on the other hand, the question is: 'Will ISDN, as a set of integrated central network features, be the overwhelming reality in the short term?' the answer is: 'Not really.' The original vision of an information network society is dead and gone because it rested on the assumption that competition would be negligible," he said.

For others, the challenge of ISDN isn't so much whether or not it lives up to original designs. Rather, it is whether it appeals to what users want now. Chuck Kanupke, vice president of marketing at Teleos, says: "ISDN is alive and well. There are already implementations in a number of major cities — Chicago, Houston, Atlanta — where the regional Bell operating companies are making a major effort to get people to use these services."

Kanupke, whose firm has been involved in ISDN for the past two years, believes that the most critical issues facing the integrated services arena are not technological, but applications-oriented. "The real issue is satisfying end users," Kanupke says. "Applications must be modified to take advantage of what ISDN can provide. The transition of certain applications from the mode in which they

are currently handled — the concept of integrating communications and computing — is essentially the same as the transition from second to third generation computing."

Although Kanupke's projections are promising, some experts believe that widespread corporate ISDN applications are still some years from widespread penetration.

Rosemary Cochran, from the consulting firm Vertical Systems Group, says: "Significant features need to be added to the current services ... and [substantial] upgrades need to be made at the carriers' central offices [before] there is widespread commercial use of ISDN applications." She also indicates that, at present, the services that are being provided are "islands of ISDN," which precludes geographically dispersed applications.

From a planning perspective, Cochran believes that the full benefits of ISDN "are at least five years away ... [and so] it will be difficult to forecast the cost of using a carrier-based ISDN network versus operating a private network."

SELLING INNOVATION

"Innovations Subscribers Don't Need," that's the "real" acronym for ISDN, or so say its critics. Although an increasing number of the US telcos and European PTTs are staking a claim in the ISDN industry, experts are cautioning the carriers to stop trying to sell the ISDN technology and start selling solutions and applications.

"The carriers need to determine what they can do to bundle ISDN with applications," says Alan Burgess, managing partner, in charge of the worldwide telecommunications industry program at Andersen Consulting (formerly Arthur Andersen & Co).

"For example, in the US, in the era prior to divestiture, the carriers prided themselves in their ability to offer incredibly reliable services at a reasonable cost," he said. In the hotly competitive post-divestiture environment, carriers must become more "interested in providing applications that the user can relate to."

While telcos and PTTs have almost universally embraced ISDN as the wave of the future, prospective end-users have so far been more skeptical

about the technology.

Burgess sees three factors that seem to have fuelled end user apprehension:

- the carriers' focus on technical standards;
- their penchant for selling the technology rather than the applications;
- the end-user's lack of enthusiasm for the message that ISDN will improve "the basic telecommunications infrastructure at nominal increased cost." In other words, more for less.

Noting that carriers continuing with the above approach to selling ISDN are at great risk of being perceived as offering "Innovations Subscribers Don't Need," Burgess urges telcos to take the offensive and identify real applications and business cases.

"If you can say to a company: 'This application will save you X amount of dollars and ISDN is a part of that,' or 'If you don't get into ISDN on an evolutionary basis you may have to jump into the technology in a way that may be disruptive or costly,' you have a stronger argument," says Burgess.

RESOLUTION?

The US National Institute of Standards and Technology (formerly known as the National Bureau of Standards) has organized the North American ISDN Users' Forum (NIU-Forum) to bring together users and manufacturers for the purpose of reaching agreement on which ISDN options to implement and what applications to use. This will ensure that ISDN products and services from different manufacturers and vendors are compatible and provide the user with defined applications.

These agreements also will put US telecommunications suppliers in a stronger position to compete for world markets. According to James Martin Associates, consultants on information systems development, the European Community is actively involved in promoting telecommunications services in general, and ISDN in particular, in each of the member countries.

In Japan, ISDN is part of a government-sponsored national technology project called the Information Network System.

21st CENTURY SHOCK

As ISDN tentacles reach out to more and more users, technical advances will surely come about to cope with the expected demand for "more, faster, better" telecommunications applications. For example, the Bush administration has endorsed a plan to increase the capacity of computer networks in the US more than a thousandfold within a decade. But even then, this transmission capacity could be quickly used up by just a few users wanting to transmit data-intensive images like X-rays.

Despite all the efforts in ISDN, it is likely to be well into the next century before our present "electronic neighborhood" expands into a true global village. But it will. And when it does, knowbots will likely be navigating along a global ISDN, carrying your information request along a super multimedia highway.

Brock N. Meeks is a Fairfax, Virginia-based freelance journalist, specializing in telecommunications.

On The Well

The success of The Well electronic conferencing network is proof positive of the

power of community over the limitations of technology.

Like a flourishing band of arctic natives in a cold and inhospitable terrain, The Well's 3,000-strong band of netplayers – mostly residents of technogreen Northern California – have carved a thriving electronic community out of a user interface that is at best aloof and at worst user-hostile

By Steve Rosenthal

Electric Word's Steve Rosenthal went to Sausalito to fathom the Grateful Dead's favorite online service.



No, not freemasons.
This is the Well handshake.

SEXUALITY AND THE WEIRD

The Well's main attraction is the high quality of both its content and interaction.

"The first time I logged on, it was an 'ahah!' experience," recalls schoolteacher Tina Loney. She used to be unimpressed with what she found on the networks – local and national. Now she considers The Well a major part of her social and intellectual life. "Its members," she says, "are the most extraordinary bunch of people I've ever met."

Interaction on The Well takes place on a dial-up computer system that supports chatting, electronic mail and conferences (extended electronic multi-part conversations organized around topics).

Most of the users live in the San Francisco Bay area. But direct calls and a link to the CompuServe communications network bring about a third of the sign-ons in from more distant locations. There are 17 direct lines, and on most days the system serves a few hundred callers.

The conferences, most users agree, are the heart of the system. Their conversational threads run through everything from the arts to technology, by way of business and computers, education, entertainment and the humanities.

Conferences themselves consist of strings of topics, in turn composed of individual "postings" or

messages. On popular conferences, you might find dozens of active topics such as "Parenting," "Telecommunicating," "Sexuality" or the "Weird" (which, as its name implies, contains subjects too

strange for other conferences).

Most conferences are public and broad-based. But there are also a few run by groups or open only to people in affected categories (the "Women on the Well" conference, for example). Many conferences have persisted since the service first opened, but new ones start up regularly. A list from this past summer, for example, includes new conferences on such topics as "Entrepreneurs"

"Some people don't want to be seen. When we have parties, there are some people who never show up and never will."

Dreams," Christianity, boating, translation and half a dozen others.

Topics and postings can also be cross-threaded into other conferences. In other words, if someone notices a conversational thread that might be useful to another conference, they can form a link between them. In that way, topics that might have gone unnoticed in one group can be passed around to multiple groups.

There's also a great deal more informal conversation. "More messages pass on electronic mail than on the conferences," surmises John Coates, The Well's official marketer and spokesperson. "But much of what is said privately rebounds to the more public postings.

"There's a dynamic between the conferences and the e-mail," says Coates. "Things get said publicly, and people contact each other about

them. There's a lot of cross-fertilization. That's how it gets to feel like a woven tapestry."

THE OFFICIAL SYSTEM

Officially, The Well — nominally an acronym for "Whole Earth 'Lectronic Link," — is a profit-making operation owned by two partners: the more active Point Foundation, best known as creator of the

AGAINST THE ONLINE CURRENT

By Jules Marshall

The relationship between alternative — underground, radical, whatever you want to call it — culture and technology has always blown hot and cold.

The paradoxical conservatism resulting from the tendency of rejectors of the mainstream to stick together and neglect the information flow between Them and Us has meant that alternative uses of emerging technologies tend to be scattered among isolated groups of creative innovators. The innate distrust of new technology felt by most people, to the left and to the right, helps to keep them apart.

This has been the pattern with many potentially revolutionary technologies, from print presses through radios to computers.

Until two or three years ago, the view that information technology was pro-state, anti-privacy, and only of use for increasing control and centralization still held sway among the alternative political and artistic worlds, particularly, though not uniformly, in Europe.

This has changed. "There is a feeling now that if it's there, you might as well use it for your own needs. Technology is not going to go away," says Eric Nieuwendijk, co-organizer of Europe Against the Current, the conference for radical information carriers from East and West Europe held last month in Amsterdam, the Netherlands.

By "Against the Current," the organizers mean "against the normal flow of information and arts that we have in Europe," and after the conference, they aim to put the *auld foe*, computers, to use themselves.

They are working on a new network, using existing PTT facilities. It will be "a multilingual, multi-centered alternative network spanning East and West Europe," aimed to be high on user-friendliness and low on compu-speak. The aim is to ensure that the opportunities for cross-fertilization of ideas afforded by face-to-face meetings with like-minded conscientious objectors to the Cold War should be continued.

Why bother creating a new network? What's wrong with using existing ones? According to Nieuwendijk, the problems are cost, content, degree of control, and centralization.

"You have to pay a lot to use existing networks. And most existing networks are mainly used by people interested in computers and networks — they get a bit incestuous with people talking about the medium. They're like

amateur radio hams boasting about how far they've picked things up from.

"Networks should deal with the real needs of people. What will be different about this network will be the people who will use it."

Who will use the Against the Current network depends mainly on what the current and its counter are.

"Against the Current is a relative term — it depends on the context one finds oneself in," said the organizing committee in Europe's first online press conference. "The mainstream or dominant culture in a place like Hungary or Czechoslovakia is quite different from that of Holland or England. So the counter currents, the underground cultures, each have their own unique expressions.

"Something that is against the current in one country may not necessarily be so in another. We are just developing a model and standardization, what happens afterwards is anyone's guess and up to the collective will of the users. Each group will have its own interest, whether mail art, politics, anti-apartheid, anarchism. It's a cheap way of gathering and spreading information."

At the conference itself, there was a taste of the large and eclectic number of groups to be expected on the network, from Italian books on diskette and Spanish anarchist groups linked by answering machines (one for in messages, one for out, which once a week are downloaded and a newspaper published — "We are getting some PCs soon"), anti-militarists, Sweden's largest Syndicalist trade union, Yugoslavian video art by post, Latvian dissidents, a women's film co-op from London, and many others. By the time of the conference, nearly 6000 groups had registered for the database.

How do the network operators aim to avoid the traps of control and centralization they claim are inherent in mainstream networks?

"Orthodox networks go wrong when the central node goes down. They can also have their content dictated from the center. This is potentially true in an alternative network, but the structure of this one should reduce the danger," says Stefan Wray, the network designer.

He had only been working on it for two months when the conference came around, "spending more time on the geometry of the

network than the details, which can be dealt with after the conference."

The network will be configured as main centers or regions linked to regional sub-centers and local nodes, so that no group is ever more than three links away from another.

There will be a manageable number of regions, probably corresponding with the following areas: Northwestern (based in Amsterdam), covering Benelux, the UK and France; Northern (Stockholm), covering Scandinavia; Central (Berlin), covering Austria, Switzerland and West Germany; Eastern (Budapest), covering the Eastern Bloc; Southeastern (Milan), covering Albania, Greece, Italy, and Yugoslavia; and Southwestern (Barcelona), covering the Iberian Peninsula.

Developing their own methods for gathering information on their particular areas, each group will be responsible for regional research into radical and alternative groups and for entering this into a multilingual database.

Each region then makes this information (publicly) accessible by all the others, and periodically, each region's information is downloaded to the others, ensuring the information cannot then be easily lost or destroyed, though there will be central editing to clear away the redundant data.

At the same time as alternative Europe has increased its know-how in information technology, there has been an increased awareness that although networks may be monitored, their control has run away from the authorities involved.

"They have tried," said Nieuwendijk. "It's illegal to have a modem in Greece and Eastern Europe, even a typewriter in Rumania. But you have to tap a network all the time — look away for five minutes and you can miss a whole book being transferred down the line. We do not anticipate problems from host countries. All the people in the database can't be arrested at the same time can they?"

Despite this "whadayagonnadoaboutit?" attitude, Europe Against the Current has relatively modest hopes for the network. Talk of revolution is thin on the ground.

"We have no pretensions as a counter-balance to anything — it would be foolish to think we could change the world or work against the multinational interests that currently drive the development of communications."

Whole Earth Catalog and the magazine CoEvolution Quarterly; and Network Electronic Technologies Inc. (NETI), which furnishes the system's PicoSpan software but is otherwise invisible in day-to-day affairs.

In addition to the PicoSpan conferencing system, The Well users can also access the underlying Unix software, thereby availing themselves of the nationwide Usenet network, which includes almost all significant academic and commercial Unix installations. "The UUCP (Unix to Unix CoPy) link gets used very heavily," says Coates, with about a quarter of The Well's members passing messages.

For many users, Unix, and to a greater extent PicoSpan, are bothersome but not an insurmountable obstacle. Syntax such as "ed.cflist" to change your list of conferences to visit or "w -m userid" to see information about another user may be obscure, but you only need a short list of commands to navigate through the usual destinations.

"To some extent," teacher Loney admits, "that fact acts as a selector." But there's extensive help and a friendly staff, and most newcomers find that people are very willing to answer questions.

Rates for The Well are on the low end for a commercial service — about \$8 per month and \$3 per connect hour, plus connection surcharges for access via networks. The system facilities, such as Unix and UUCP, are included in these charges.

In actual practice, though, The Well is more of a community than a business. While a tiny staff of less than half a dozen takes care of the hardware and administration, most of the day-to-day functioning of the conferences and the messages are taken care of by the users and the conference hosts (who get free time but no other pay for their efforts).

There's also very little of the heavy-handed screening of message content typical of many of the national information services. Whether that's because of The Well's direct roots in a politically progressive organization, or the counterculture air that still pervades the system, or the background and inclination of the formal administration, there's a lot of live-and-let-live tolerance and a recognition that social feedback can handle most typical problems.

"Some people just don't have good manners," says Coates. "You can really feel insulated and protected from people if you're not looking at them — nobody can take a swing at you. On occasion, we've stepped in to request more diplomacy. *One time* we had to ask someone to go away. But that's once out of more than 10,000 sign-ups."

From the user's point of view, the effect is that the community does most of the regulation — and even most of the marketing. "There's nobody running it," explains Howard Rheingold, one of The Well's most active hosts and a well-known author of books on technology and society. "There's not some Well Company behind the scenes. It's all people talking about ideas who have been attracted to the fact that there are people talking about ideas."

THE DEAD CONNECTION

The Well's most remarkable conference is the one it provides for fans of the Grateful Dead, a San Francisco-based rock band of some 25 years' standing and a bastion of the Bay area radical tradition. "Deadheads," as the group's most dedicated fans like to call themselves, chat about the

The Well is more of a community than a business. While a tiny staff of less than half a dozen takes care of the hardware and administration, most of the day-to-day functioning is taken care of by the users and the conference hosts — who get free time but no other pay for their efforts.

music, trade tickets to concerts, and discuss future tours, past golden gigs and other band-related matters.

The Grateful Dead conference often generates as much as half the total traffic on The Well, admits manager Cliff Figallo. The resulting revenue has helped pay for the necessary hardware, and the energy has helped keep the system in motion.

"I know several Deadheads who bought computers just to join The Well and our conference," reports David Gans, producer of a syndicated Grateful Dead radio program and one of the two original co-hosts of the Grateful Dead conference on The Well.

Started by Gans and Mary Eisenhart (Managing Editor of MicroTimes computer magazine) in February 1986, the Grateful Dead conference has grown steadily since then. "These days, it's not unusual," says Eisenhart, "to find 12 log-ins an hour into an active Grateful Dead conference."

Many Deadheads, Eisenhart admits, only sign into the Dead conferences and have little interest in the rest of what happens on The Well. While there is occasional indignation about that fact from other users of The Well — and both Deadheads and non-Deadheads sometimes wonder what they have in common — there's little actual ill-will because the conferences don't really overlap.

On the other hand, Dead conferences sometimes pull in users whose interests later broaden or change. "I got interested in The Well because I'm a Deadhead," confesses Carol Gould, now a graduate student in psychology. "I wasn't interested in computers for their own sake."

After several weeks on The Well, though, Gould says, her interests started to shift. "I sort of lost interest in the Grateful Dead conference," she goes on. "A lot of other aspects of The Well really intrigued me. It just sort of expanded." Now, she says, she's become a host of one conference and a visitor to several others.

The same broadening of interests also tends to affect people who join The Well for professional reasons. Jay Allison, an independent radio producer who signs onto The Well from across the country in Woods Hole, Massachusetts, points out that his original interest was in forming a conference for independent radio producers. While that's still on the agenda, Allison says that he also became interested in the Parents conference — which in turn proved a source of information and support when Allison's two-year-old daughter encountered serious medical difficulties.

WE ARE THE WELL

Aside from the Deadheads, the users of The Well are probably best described as members of several related communities rather than as one single

group. One strong current that appears from the account, though, is that The Well users tend to be progressive in their social attitudes and more likely than the average to work for themselves.

For the freelancers and independent professionals who frequent The Well, it can serve as an alternative to the office water cooler or lunching in the right restaurant.

Radio producer David Gans, for example, says that he spends a lot of time on The Well while he's watching over spinning tapes. He can't leave his home studio, but he doesn't like to be isolated. Furthermore, the asynchronous, time-tolerant nature of the interaction lets him join in a dialog, drop out momentarily, and catch up without interrupting the flow.

Similarly, Tony Roder, a professional translator of English, French and Romanian, says he's been trying to get translators to form a conference on The Well because the work is usually very solitary. With an online conference, he says, translators who work scattered around the region and the country could still exchange shoptalk.

Economics is another incentive. A lot of the users, says Coates, "are people who work for themselves. Consultants, writers, freelancers, people for whom it's very important to have their shingle hung out. Every if you're working, if you do contract work, you always have your feeler out for the next thing."

For a few users, The Well is also their strongest social connection. "There are people who are disabled and some who never get out of the house at all — that's not an insignificant portion," says Coates. "It's a very enabling tool for people who suddenly find themselves able to communicate intellectually."

That's also true, he says, for a smaller group whose difficulty in getting out is social and psychological rather than physical. "Some people don't want to be seen. When we have parties, there are some people who never show up and never will."

"To characterize it in just one way is to over-generalize," agrees author Rheingold. "But one thing I can say is that we are all sort of intelligent 'misfits' who've made our intelligence work for ourselves. There's an image in the mass media that people who are concerned about making our society a better place to live in, the counterculture, went out after the sixties and all got a job. But the counterculture never really died. There are still people trying to make the world a better place."

Steve Rosenthal is Electric Word's US West Coast correspondent.

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SIEMENS

Speeding up translations for Europe 1992

Europe 1992. A home market of 320 million people with nine different official languages. Translations will be needed more than ever before, but conventional translation methods are already unable to cope with the huge volume of work. Translation times of a year or more for large technical documents can make a nonsense of product marketing schedules.

But Europe is setting the pace. A new computerized translation system increases the productivity of translators several times over. Siemens has developed METAL (Machine Evaluation and Translation of Natural Language), the first machine-translation system to use Artificial Intelligence techniques. In contrast to previous systems, it does not simply translate word for word, but deduces the meaning context. METAL is both intelligent and fast—200 pages a day. New challenges call for new solutions. For Siemens, 1992 can start tomorrow.

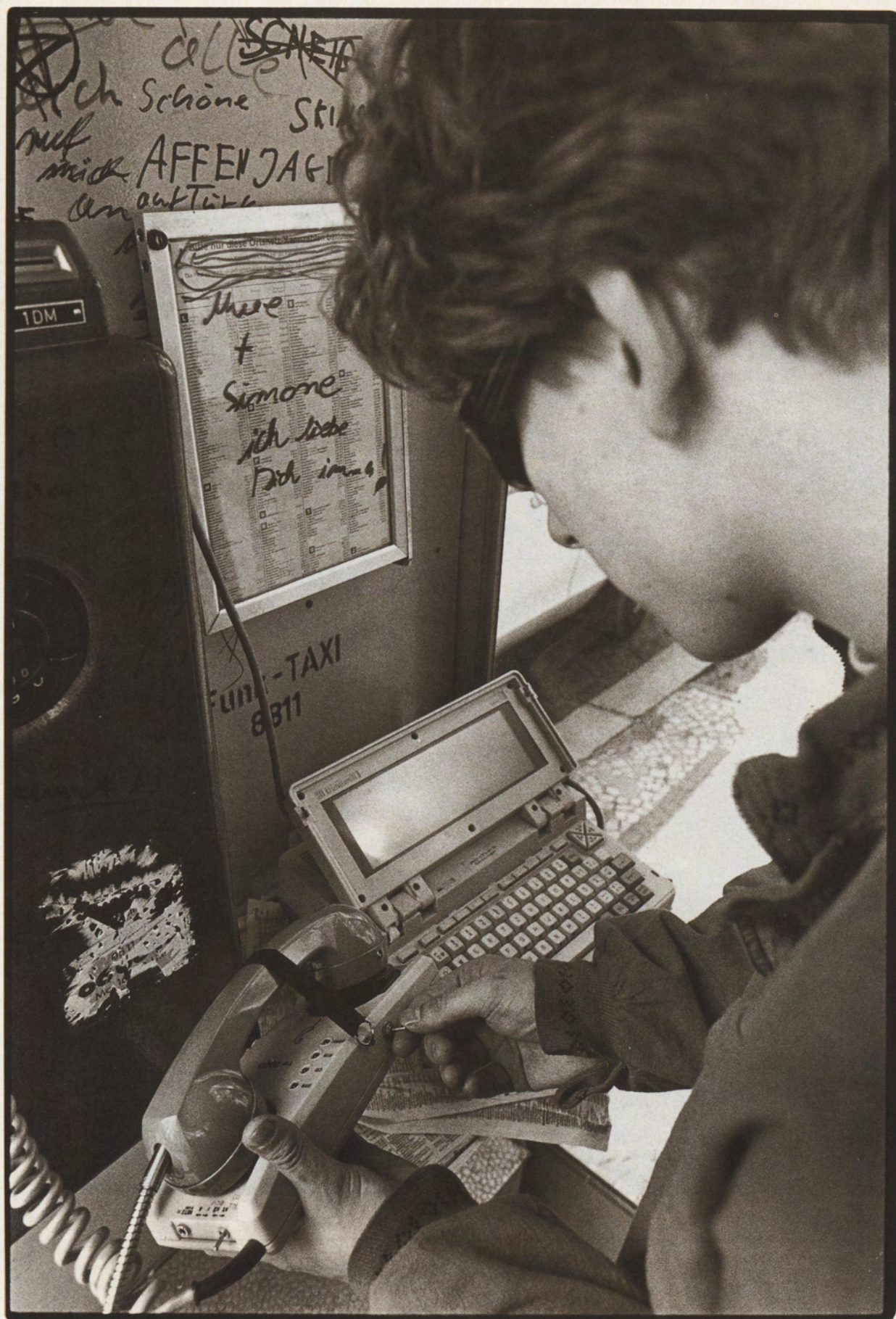
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THE FACTS - JUST THE FACTS - ON THE ELECTRONIC



OUTLAWS WHO PLAGUE THE DATACOMS NETWORKS

West German Karl Koch, 24, was convicted by a German court of hacking into US military and technical databases and turning the information over to the Soviet Union's KGB. In a bizarre twist, his charred body was later discovered in woods near Hannover — apparently, he poured gasoline over himself and set himself ablaze.

By Brock N. Meeks — Photos by Manfred Wienhöfer

SABOTAGE

They call it a war. It costs as much as a war and it certainly feels like one.

Last year, US law enforcement agencies — local, state, and federal — spent hundreds of millions of dollars fighting computer-related crime and sabotage. The money fuels a war that spans continents, thwarts state-of-the-art technology, and strains the ethics of both society and commerce.

In the battle to control the estimated billions of dollars lost to datacommunications bandits, a hightech version of cops and robbers is being played out nightly over the ether. And this game is serious, sometimes deadly.

Not unlike the legendary outlaws in the era of Jesse James, several of these hightech anti-heroes have already attained cult status. The dimestore paperback adventures of Billy the Kid have given way to front page headlines in the New York Times and cover stories in Time and Newsweek and Stern.

The outlaws once trafficked in the merely mundane: pirated software and passwords to mainframe computers. In recent years, however, the stakes have risen considerably. They now carry everything from stolen long-distance access codes to neo-Nazi racist propaganda and detailed instructions for the construction of deadly weapons.

NEO-FASCIST NETWORK

Fort Smith, Arkansas, March 1988. FBI agent Steve Brannan testifies to finding money, weapons, ammunition, and books on how to kill, in a vehicle driven by the wife of Bruce Pierce, one of 14 defendants being tried for seditious conspiracy and plotting to murder federal officials.

Bruce Pierce was a member of a white supremacist group called The Order. He is now serving 150 years for the 1988 fatal shooting of Alan Berg, a Jewish radio talkshow host in Denver, Colorado.

Brannan said agents found at least 20 books and pamphlets with such names as "The Death Dealer's Manual," "Assassination, Theory and Practice," "Hit Man: A Technical Manual for Independent Contractors," "Paper Trip II — A New You Through New Identification," "Disguise Techniques," and a five-volume set called "How To Kill."

During the trial, the government contended that Pierce was responsible for setting up a computer communications network for the white supremacist movement. Documented evidence gathered from The Order's bulletin board included accounts of vicious attacks on the homeless by skinheads, hit lists of non-whites, and mention of involvement with organized crime.

The Order trial is symptomatic of a large-scale deadly threat — and one which the FBI takes so seriously that two years ago it advertised for "computer-literate individuals" who could form the core of an elite electronic strike force. This force is now combat-ready. And as in so many conflicts, the only rule that seems to apply is that there are none.

In the meantime, though the FBI has been accused of abuse by the American Civil Liberties Union, a whole cadre of electronic informants is on the FBI payroll, snooping on unsuspecting users, and local law enforcement agencies also regularly set up electronic "sting boards."

HOW BIG?

How widespread is computer-assisted crime? August Bequal, an expert on US industrial security law, predicts that computer crime will expand as office automation increases and spreads to companies of all sizes.

"I don't believe that either the accounting or legal professions - or law enforcement in general - are adequately prepared to deal with the problem of computer crime," claims Bequal. He has his own law practice in Vienna, Virginia, and advises domestic and international clients on industrial security.

"A lot of these crimes are committed by insiders. And it's safe to say that the best of security measures — physical, electronic, and everything else — are really of limited value," adds Bequal.

"The computer and other office automation technology facilitates the theft of assets and information, the manipulation of assets and earnings - all sorts of things. What it really comes down to is that technology has, if you will, become a catalyst, and it makes such acts easier."

According to Bequal, computer-assisted crime is just one aspect of white-collar crime in general. As with many other areas of white-collar crime, most incidents are hidden from the public gaze. White-collar crime costs businesses \$67 billion a year and

in 1986 accounted for 15 percent of the total rise in prices.

VIRUS 101 - AND THE TROJAN HORSE

The subjects of the most spectacular headlines in the computer industry these days are the ravages wrought by computer viruses.

Viruses are small rogue programs created by computer hackers as jokes or acts of vandalism and secretly inserted into other programs. Such programs can be spread from computer to computer by operators sharing "contaminated" software.

At their most benign, viruses will only cause a brief message to pop up on a computer screen. At their worst, they can destroy information stored in computer memories.

Although computer viruses have only recently surfaced as a problem in the mainstream computer industry, they're nothing new to select agencies of the US military establishment. "We've known about viruses for five to 10 years now," says Don Parker, who heads the information security program at SRI International. "In fact, it was the Department of Defense that came up with the 'Trojan horse.' It's been a well-known method of attack for some time."

A Trojan horse is a "primary device used to introduce a virus to a computer system," according to Parker. He will not, however, be specific. "Well, uh, any such work would be classified," says Parker. "If there were anything to say, I couldn't say it because of the security classification. I couldn't say what, if anything, the NSA (National Security Agency) is doing with regard to examining the problem or use of viruses."

Parker does, however, point to a "particularly interesting French novel" called "Softwar." The novel, written by Breton and Beneich and published in America by Henry Holt and Co. (1986), involves the US planting a very destructive virus in a computer that is sold to the French, who are in turn directed to sell it to the Soviets, where the virus infiltrates the Soviet computer system.

So effective are such programs in reality that military counter-intelligence agencies are now seriously considering adding them to their hightech arsenals. US military analysts say that the insertion of Trojan horses into computers sold to hostile countries would be an effective counter-intelligence asset.

For example, such programs could have been useful to thwart a spy ring, operating out of Bulgaria, that was recently broken up by Greek, Cypriot, and NATO security agents. Under surveillance for two years, the Bulgarian network was a pipeline

for transferring Western computer technology to Soviet Bloc countries.

The security agencies finally moved to close down the spy ring when it shipped a DEC VAX computer to the Bulgarian capital of Sofia. "Had a Trojan horse been installed in that computer, we could have used it to our advantage," said one military security analyst.

VIRUS SABOTAGE

Nobody knows how many virus sabotage incidents have occurred. The victims — typically universities, companies, and government agencies — try to suppress the news out of embarrassment and to avoid "copy cat" crimes. Parker sees two possible scenarios emanating from what he insists is "basically a media event."

The first scenario posits that the only reason why computer viruses are now suddenly so prevalent is because of the attention given them by the media. "Stop all the news reports, and pretty soon the interest in computer viruses will die out," Parker claims.

"We will certainly have viruses as a threat, but the idea of being first, the thrill of doing something that hasn't been done, will be gone. This is coupled with the fact that a virus is just too much work to develop, too tedious to program; there are much easier ways to accomplish the same goals without developing a virus."

In the second scenario, Parker sees the extremes of "both scope and maliciousness" turning into fact. Such extreme circumstances, he says, "could end up destroying the entire public-domain resource of software. Everyone would be suddenly suspicious of any kind of software that had been exposed to an environment where there might have been exposure to a virus."

"Because everyone would be too frightened to accept software from anybody else, there could be a sort of 'Tylenol scare' syndrome, arising from the fear of product contamination, and which could eventually destroy large software companies."

Parker asserts that it's not only the public-domain software market that would suffer. Commercial software houses are vulnerable, too. A disgruntled employee could embed a virus in the software before it was packaged, he claims. And since software stores often have their own shrinkwrap machines, a piece of commercial software could be tampered with, shrinkwrapped, and put on the shelf for sale.

Parker thinks that if left alone, the virus fever will die and the plague just "fade away." However, he admits that several colleagues at SRI "strongly disagree" with him.

FBI SEES RED

Last year, the Federal Bureau of Investigation released a study claiming that the Soviet Union has directed a massive espionage operation against US libraries. The operation is apparently aimed at gaining sensitive technical knowledge and recruiting agents.

The study, entitled "The KGB and the Library Target: 1962 - Present," was released as FBI Director William Sessions defended the Bureau's Library Awareness Program, which came under attack from the American Library Association when agents visited the Math / Science Library at Colum-



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**"Wir haben gekifft,
gekokst, gehackt"**

**Nobody knows how many
virus sabotage incidents
have occurred. "A virus is
just too much work to
develop, too tedious to
program. There are much easier ways to accomplish the same goals without developing a virus."**

The FBI agents informed the clerk that they were part of a Library Awareness program, asking librarians to be alert to the use of their libraries by persons from countries "hostile to the USA, such as the Soviet Union."

Asked if such an awareness program had extended to online databases, the spokesperson said: "Considerations have been made in that direction." However, he declined to provide details on how such a program might be executed, what database providers might be contacted, and how the database usage monitoring might be achieved. He added: "The (Library Awareness) program is a counter-espionage operation against the Soviet collection effort."

Testifying before the Senate Judiciary Committee, Sessions calls the library program an important counter-intelligence operation and comments: "I think we have a responsibility to do it. Any librarian can say to an FBI agent: 'I don't choose to give that information.' But," he adds, "People don't come to a technical library to read 'Goldilocks and the Three Bears.'"

In a strange twist to this hightech spy drama, the charred body of one of the suspects was found in Hannover, West Germany. Karl Koch, was found in the woods. According to police reports, he apparently poured gasoline over himself and set himself ablaze.

One of the most expensive computer crimes – the stealing of long-distance calling card codes – is often thought of as a relatively harmless, “victimless” crime. But at a cost of some \$500 million in losses a year, someone has to pay.

Evrick Bowens, MCI's executive in charge of toll fraud, estimates that during a single crime spree at American University, students stole \$25,000 worth of illegal long-distance telephone calls by stealing calling cards, using computers to find the secret codes.

ROM STERN MAGAZIN NR 20



sonsten entsprach das den Tatsachen, seit Freund Dob wegen Trunkenheit am Steuer den Führerschein verloren hatte: «Fahrer» Peter Clauss verstand etwas von schnellen Autos und konnte den Chauffeurslohn gut gebrauchen.

Er steuerte Bachowsky's rotes Nissan Sportcoupe, wenn sein »Chef« zu einem seiner Sondereinsätze gerufen wurde. Er belastete das Verhältnis der beiden auch nicht sonderlich, erinnerte sich Freunde aus der Berliner Hackerszene, daß Pedro bei einem gemeinsamen Spritztour später »den Turbo-Hobel an die Ampel setzte«. Den Totalschaden konnte Dob verkräften.

Fast problemlos passiert
die beiden »Däter« reisenden
Peter Clauss
ten im Herb
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The game is serious, sometimes deadly. Not unlike the legendary outlaws in the era of Jesse James and Billy the Kid, several of these hightech anti-heroes have already attained cult status.

One 13-year-old "phone phreak" — as the charge dodgers like to call themselves — says: "My computer can dial a lot faster than you can. It can dial about two (codes) every minute. That's 120 times an hour." By morning, his computer will have stored roughly 10 codes.

"If you steal somebody's money at gunpoint, it's a very personal act - you are pointing a gun at a victim," says John F. Maxfield, a computer and electronics expert working as a security consultant for telephone and other companies.

"But if you happen to guess the MCI number, you don't know who the victim is. It's completely depersonalized," he says. "Many people just rationalize it away. It's just a big corporation somewhere, and there really is no chance of getting caught."

"It's what I would call a socially accepted crime, unfortunately," says Jack Cox, a top Bell Atlantic Corp security manager. "A lot of people know it's wrong, but it's something everyone does. It's sort of like going 80 miles an hour. What's wrong with that? It's a crime, period. And if we catch you, you will be charged with a criminal offense."

To reduce theft, the companies use each other's security services and the help of local law enforcement officials, the Secret Service, and the FBI. "Your major toll carriers may be competitors, but in this one instance, we share information and resources," says Sprint's Robert Fox, director of security. "We do everything from technical to on-street surveillance."

Kevin David Mitnick is the ultimate computer nerd, according to the colleague who turned him over to the police. But to the Los Angeles police department, this man, who calls himself by his code name "Condor," is so dangerous he must not be allowed

"He is truly a threat to society, someone who uses computers to act out personal vendettas against people," said Jim Black, a computer crime specialist with the Police Department.

"The bottom line with Kevin is that if you have a job, pay a gas bill, use a phone, or drive a car, he can find you and ruin you electronically," said Black in a telephone interview. "If he weren't in jail, he could be listening to us right this minute." During his stay in jail, Mitnick was held in a maximum-security cell at the federal Metropolitan Detention Center, Los Angeles.

A federal grand jury indicted him on charges that he used unauthorized MCI long-distance codes to tap into computers at Leeds University in England and the University of Southern California and that he caused four million dollars' worth of damage to a Digital Equipment Corp. (DEC) computer system.

Even governments aren't safe from the nefarious hacker. In October 1988, the Belgian prime minister Wilfried Martens said that he had changed his password for a Belgian government computer after learning that a hacker had broken the code when an interview with the hacker was published in a local newspaper.

The hacker, calling himself "W.M." - the prime minister's initials - had come across another hacker in the system while reading ministers' personal messages, the paper reported.

Despite the hightech image of computer hackers as some kind of data terrorists, computer security experts agree that it remains an administrative problem that should be approached as a routine management issue.

Security experts agree that the greatest danger to computer networks does not come from outside hackers. Instead, the biggest threat is from disgruntled employees or others whose original access to systems was legitimate.

One young hacker, when asked why he took delight in breaking into computer systems just to "look around," replied: "Why steal anything? Data can be restored, but it takes years to rebuild public confidence."

The Guinness Disk of World Records

By Jules Marshall

Illustration by Henri Lucas

The CD-ROM circus has not heard a major whipcrack for a while. With a new generation of standards still being fought over in the emerging multimedia arena, publishers have been taciturn in their response to the manufacturers' call-to-arms. Without an extensive portfolio of titles to show potential customers, drive manufacturers have had a hard time justifying their prices to many outside the specialist database market.

(BROUGHT TO YOU BY CAPTAIN BOB)

his month, Robert Maxwell, one of the printed word's biggest ringmasters, teamed up with Apple (rumored to be bundling a CD-ROM drive with the next Mac) and Guinness (of the renowned black velvet brew) to have a crack, releasing a record-breaking challenge to drive manufacturers.

In the clamor for attention from competing sources of information, a good idea is often not enough. But with a cheap price and a slick marketing campaign, this CD-ROM could soon find itself joining its printed progenitor in the publishing hall of fame.

Cue Roy Castle voiceover: "It's sold a cumulative total of over 60 million copies in 31 languages, making it the number-one-selling book ever after the Bible, it's the book most stolen from British libraries ... and its a record-breaker!"

Yes, every trivia addict's oracle: the Guinness Book of Records, published as a multimedia CD-ROM this month by Pergamon Compact Solutions (PCS) in conjunction with Guinness.

PCS claims it is the first genuinely mass market multimedia product (Warner Entertainment released the Silver Flute on CD-ROM at the last MacWorld. But is opera mass market?).

If it sells, the Robert Maxwell-owned company could well break the no-titles-without-drives-and-slow-drive-sales-without-titles log jam. A case of "Here's the egg, give us the chicken?"

"Exactly," says Cally Brown, marketing manager at PCS. "And give us the chicken at a reasonable price, because frankly that's one of the main barriers to the acceptance of CD-ROM. Especially in Europe, where it still costs £500 to £1000 for a drive."

So far, large conglomerates have been largely unsuccessful in the electronic publishing and on-line businesses. The major winners in the field have been those with some kind of vision about where they want to go and the means and patience to achieve it. Though long on the means, the scle-



rotic dinosaurs of the print world have on the whole been short of the nimble creativity that smaller companies have harnessed.

ONE-MAN CONGLOMERATE

Robert Maxwell's credentials as a one-man conglomerate are beyond question. And after several years of grappling with his unruly print interests, so too is his commitment to the electronic media.

Through a mixture of start-ups and takeovers, newly formed Maxwell Online provides the following services: BRS, Orbit, Infoline (USA), and the UK-based Pergamon Financial Data Services.

In addition, he controls several electronic publishing companies: Nimbus, Maxwell Data Management Ltd. (in the UK; its US counterpart is MDM Inc.), Molecular Design Ltd., Mirrorsoft Ltd. (games and business software), and the Official Airlines Guide.

Is Guinness what Maxwell needs to score where others have had their fingers expensively burned?

Established in 1986 to produce CD-ROM and other optical storage applications for third parties (including a CD-ROM version of the Boeing 757's documentation for British Airways to replace the old microfilm system), Pergamon Compact Systems has already had success at mixing good ideas and joint ventures with the vertical publishing opportunities offered by the patronage of a large group.

Since beginning its own CD-ROM publishing program last year, it has produced the Royal Society of Chemistry's Pesticides Disc, which contains technical, commercial and environmental data on 23,000 products and 700 active ingredients, plus information on the companies involved, and Pergamon Press's own International Encyclopedia of Education, a ten-volume database on the world of institutionalized learning.

Its first stab at a less rarified title was Defender of the Crown, adapted from the Mirrorsoft diskette-based adventure game of the same name. PCS claims it was the world's first CD-ROM entertainment program. With its CD-stored stereo voiceover, it was the company's first venture away from simple text and graphics.

"Right since the start, we've aimed to use CD-ROM to add value to information. We don't see the point in just putting what's available online onto a compact disk," says Brown. "You can slap any data on a CD-ROM, and frankly a lot of people do. We believe in designing for the medium."

For this reason, PCS is not pushing any particular hardware platform. Instead, the company has worked in the MS-DOS and Mac environments and is looking at Compact Disk Interactive (CDI; with a prototype machine on loan from Philips), Digital Video Interactive (DVI), and CD-ROM XA (Extended Architecture).

The Guinness Disc of Records is straight CD-ROM, which with a data compression ratio of 25:1 is sufficient for mixed media without recourse to new techniques such as interleaving. For the time being, it will work exclusively on Apples (with a 100 Mb harddisk and HyperCard 1.2 or later). "We chose to use Apple's HyperCard because it is such a productive environment for developing multimedia and because of Apple's commitment to the concept," says Brown.

CAST OF THOUSANDS

Although print runs for the previous disks have been in the 200 range, mainly because of their narrowly targeted nature but also because of the slow takeoff of players, Guinness will be different. "I can tell you the print run will be in the thousands," says Brown.

Will they shift? The disk will contain 4,500 records, 300 full color photos, 30 animations explaining how records are broken and 10 minutes of music, sound effects and voiceovers (including the world's loudest burp, the fastest backwards-speaking man and the fastest-talking auctioneer), and will cost an aggressive US\$99 (UK£60).

The demo I saw was a little chaotic because it was still being finished off — understandably so given the rapid concept-to-shops turnaround. The idea was born late last year, went into production in June, and was to be out by mid-October.

"The important thing was that Guinness already held the text in machine-readable form, provided as an ASCII file," says Brown. "This is the 1990 version, so it has not been available to us until quite recently. What takes the time is the design."

PCS had one Apple programmer concentrating solely on it, one design staff information scientist and a project manager, with some of the animation farmed out to freelancers.

Once all the information had been put in and all the software applied, PCS produced the pre-mastering tape and checked the information on a CD Tester, which simulates what the user will actually see before the CD has been stamped. "The quality of the information has to be above suspicion, and we will go through it manually if necessary — like galleys," says Brown. Once satisfied, Nimbus — handily, also owned by Maxwell — did the stamping.

At that point it becomes very like book publishing. The disks are manufactured at a small factory in Wales. Of a higher quality than that of CD audio, the disks should last a long time. "Let me put it this way — they'll outlive you or me," says Cally Brown.

In order to keep it "dynamic and userfriendly," on starting up, Guinness displays dynamic pictures that change after five to 10 seconds. The main starting categories are the Natural World, Physical World, and Sporting Achievements.

BREAKFAST OF CHAMPIONS

What steps are taken from here are dependent on the KRS retrieval software, the heart of the product. Without it, the CD-ROM drive and disk would stand idle. It finds specific information and presents it to the user. KRS has two distinct components: the retrieval engine and the user interface (UI).

The former searches the disk and finds information, presenting it as the UI on the screen. From

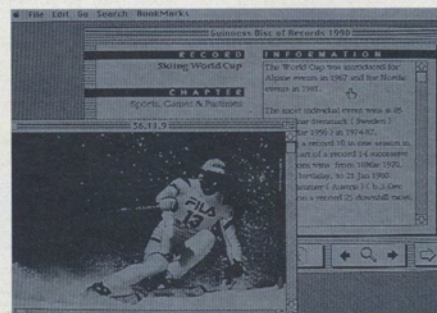
what I saw, it does this very well, finding all searches, whether text, graphics, or sound in a matter of seconds. Maybe faster, and certainly well short of being too long.

By manipulating the UI, the searcher communicates with the retrieval engine. KRS can search by linking two or more words and specifying the relationship between them according to Boolean OR/AND/NOT rules. For example, you could search for "fastest" OR "quickest," "fastest" AND "bird" or "fastest", "eating" NOT "goldfish."

This keyword search can take you to some pretty strange parts of the book: search "aeroplane," and one reference will be to the eating thereof, because the world's greatest omnivore has eaten a Cessna light aircraft.

You can also do reverse searching, by asking something like "Who was Robert Wadlow?" which will take you to the reference to the tallest man ever. "This adds a whole new dimension to the product, both educationally and as a matter of interest," says Brown. "We have had a very excited reaction from teachers in the US."

Indeed, educational research shows that people best remember what is learnt visually and that information will stick in the mind longer if it is actively sought out and manipulated. These are two of the keystones to Apple's push into education.



Another way of accessing records is to browse through the pictures, just as many people browse through the original book (the program makes a reassuring slide-changing noise as you do so). Many of the book's line drawings have been animated, such as a flea displayed next to a pencil, going *boing* off the screen. "Guinness is the great browsing book anyway. No one picks it up and reads it cover to cover," says Brown.

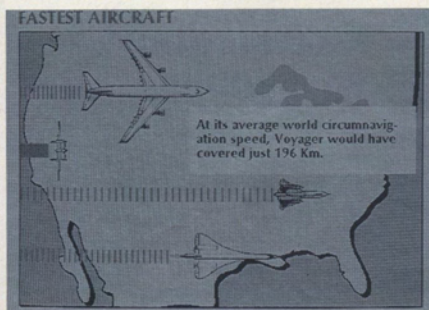
Finally, screens can be printed out, and PCS was looking at providing help in audio form, depending on how much space they had left.

The one thing the Disc of Records lacks is moving video. But that, points out PCS, is a hardware platform deficiency. It was particularly nice to hear that a large-text option is being added for visually impaired fact-gobblers.

DON'T WORRY, YOU'LL NOTICE IT

But even with the best of products, as Cally Brown says, CD-ROM is a frustrating market. "You can make as many products as you want. But until there are enough drives you can't sell them, and no one wants a drive until there are enough titles."

Also, drives are still very expensive in Europe compared to the US. For this reason, Guinness will be primarily aimed at the latter market, though in



WHITHER CD-ROM?

By Geoff Pogson

"In the four years since 1985, CD-ROM has come from nowhere to being the fastest growing sector in the information services market," says Columbus, Ohio-based Richard Bowers, president of the Optical Industry Association. Even more remarkable, most of that growth has happened during the past twelve months.

What's good about CD-ROM? And what does the future hold, as its multimedia next of kin DVI and CD-I themselves approach shelf-readiness?

Up to early 1988, CD-ROM was looking like a prematurely born publishing technology. A delight to future watchers but commercially still in the incubator. And not for want of a potential market. Professional users of published reference information – from translators through scientific researchers to librarians – should all have been among CD-ROM's proto-punters.

The problem was a familiar one: not enough titles to warrant the public's buying a CD-ROM player, and not enough players to warrant developers publishing titles.

Then, last year, it came to life. Apple launched its own CD-ROM player, breaking the PC/compatible monopoly. And suddenly all new players were incorporating audio. (*Hey hey*, when you weren't accessing databases, you could be catching some sounds.)

The result has been a sevenfold rise in the number of CD-ROM players installed worldwide – from 25,000 in mid-1988 to today's 170,000. And this increase has been accompanied by a growth in commercial titles – from a handful to the current 325. In addition, there are now between 250 and 300 non-commercial CD-ROM titles for restricted distribution within companies.

"The CD-ROM market is now worth US\$400 mn, out of a total six-billion-dollar information services market," says Richard Bowers. "That's one-fifteenth of the entire market. And by the end of this year, it will have doubled."

SEARCHABLE

What makes CD-ROM such an attractive publishing medium? Bowers pithily sums up its advantages: "It's versatile, it's dense, and it's easy to distribute."

Compare it to other media. Unlike print, a CD-ROM's read-only contents can be loaded into a computer's RAM – where it becomes writable – and edited onscreen. Compared to a diskette, CD-ROM's memory space is elephantine – on average 500 Mb as against the standard diskette's 360 Kb. In contrast to online information services, CD-ROM is fast, simple, and scores high on presentation.

Indeed, until ISDN is all wired up and running, CD-ROM will remain the only large-capacity electronic medium to make text, high-quality graphics, and now moving images and sound, immediately and easily accessible to the computer user.

Most CD-ROMs now available hold optical versions of large reference works and highly specialized databases. Bowers: "The best of these draw on a variety of sources. The Aids Disk, for example, published by the New England Journal of Medicine, combines papers from the Journal and the Lancet with the entire San Francisco General Hospital Aids database and relevant extracts from medical textbooks."

However, CD-ROM's use is broadening to include the publication of "raw data," periodicals, and applications software.

"Raw data" refers to the preliminary findings that scientific researchers produce for the scrutiny of their academic colleagues. Once on CD-ROM, the data can be loaded into RAM, checked and annotated onscreen, and then returned either in hardcopy or diskette form to its originators for further editing. The relatively low costs of CD-ROM production – an average US\$5,000 to press 500 disks – make it an ideal medium for this purpose.

Low production costs also make CD-ROM an attractive medium for the distribution of periodicals. Ziff Davis's Computer Library, for example, makes available 43,000 articles from 200 US computer magazines, all digitally searchable – and updated monthly. An annual subscription costs US\$1,200.

In Richard Bowers' opinion, "whenever you want to publish more than two diskettes, CD-ROM is more economical than floppies." And the producers of applications software seem to agree. Microsoft started the ball rolling, with Office, a CD-ROM for the Mac containing Word, Excel, PowerPoint (slide-making), and Mail (communications). The disk started shipping in America in August 1989, selling for US\$949. Its European release is set for late October.

MULTIMEDIA ONLINE

An important part of CD-ROM's future lies in multimedia publication – the integration of sound and moving images with the disk's text and graphics – aimed at a far more general audience than that for, say, scientific databases.

A standard technology for its implementation, called CD-ROM XA ("Xtended Architecture") is already here, and a trickle of products shelf-ready – including Pergamon's Guinness Disk of Records

(see main article) and Warner New Media's Magic Flute. The latter belts out Mozart's opera through your speakers, accompanied onscreen by the libretto and a written commentary – plus a glossary of opera terms for the novice fan.

CD-ROM XA is closely related to two other multimedia optical publishing formats – DVI (currently being developed by IBM and Intel) and CD-I (the brainchild of Philips and Sony) – both of which are approaching marketability. Yet Bowers is quick to dismiss speculation that the three media will do each other any competitive damage.

"They're aimed at different markets," he says. "So they'll each find their own niche. CD-I is intended as a home entertainment medium, to be plugged into the TV and stereo, whereas XA requires a microcomputer – so it's primarily aimed at professionals and will probably continue to be used mainly for reference applications."

DVI will run on a PC/compatible equipped with a purpose-built decompression board. More capacious than CD-ROM XA, it will have greater multimedia capabilities – and its developers expect great things of it in the burgeoning interactive training market.

Bowers is equally optimistic about CD-ROM's ability to stand up to the datacoms challenge. "Of course, the telecoms industry would like us to believe that online services will replace CD-ROM. However, online's speed of delivery is still much slower, its graphics capabilities far poorer, and it is infinitely less userfriendly than CD-ROM."

In fact, CD-ROM is already being used in combination with online services. Dow Jones, for example, puts its "historical" financial information on disks which, at appropriate junctures, prompt the user to go online for up-to-the-minute information in any particular field.

And the Lotus Development Corp.'s One Source disk, containing 25 years' worth of financial information, integrates CD-ROM and online even further. At appropriate moments, it will automatically log you into the company's online database – for an annual subscription fee of US\$8,000.

But once online services are as speedy, presentable, and userfriendly as CD-ROM – in other words, once ISDN has arrived – won't the end be nigh for the silver platter?

Not according to Richard Bowers. "Just as there will always be books, there will also always be room for the digital publication of information. And the beauty of CD-ROM is that it lets you both publish your work in a fixed state and allow it to be downloaded for editing."

the long term, it will be marketed worldwide with non-English-language versions as "a distinct possibility, though not immediately."

Readers with a CD-ROM drive can be sure of seeing mention of it somewhere. Guinness is being given a big advertising push, plus exhibitions, and press launches in London and Washington. Both Apple and Guinness will be giving full support.

It will be sold in computer software outlets. "We can't expect this to move fast at WH Smith's – yet – though it is my dream that you'll soon be buying

CD-ROM disks as Christmas presents," says Brown.

When that happens, the disk – like the book before it – will turn into a money-making perpetual motion machine. And PCS intends to put out a new edition each year, which you will have to buy afresh.

Guinness may be a landmark, but it's a dead cert that the name "Maxwell," in one incarnation or another, will crop up increasingly with a silver background. As PCS has shown with its previous

CD-ROM titles, with his print publishing resources – including Macmillan's reference works, and Pergamon scientific publishers – there are many possibilities for vertical products.

"I'm sure we're the only people at the moment producing something quite like this with all the media. And we see it as the way which we as a part of a large international publisher will develop," says Brown.

Media moguls – love 'em or hate 'em, you can't ignore 'em.

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5. Interactive screenplays. **Maghi King.** Alex Gross on glossaries. Dubbing and titling in

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6. Computer visionary **Alan Kay** on the psychology behind modern interface design. PCW's **David Bunell** on his HyperCard Mac-World. **Jef Raskin's** Information Appliance, the Canon Cat, **Controlled English,** Gachot and his unified **Systan MT** System. Review: INK Text Tools, the translation aid; **NotaBene,** the multilingual wordprocessor; the HUM Concordance Text Analysis program; an Electronic Sherlock Holmes Companion; **Electric Language,** the book about how electronic wordworking is changing the way we think.

7. First Anniversary issue with now scandalous cover and story on **sex and dating** on the Minitel, how **Longmans** collects world English, document image processing, how to test a machine translator, how to build your own personal workstation, critic of television **Neil Postman,** Andre Abbou and the state of the language industries, Stewart Brand's **The Media Lab,** reviews of freeform databases, Microlytics' **WordFinder,** McGraw Hill's Science and Technical Reference on CD-ROM, Borland's **Sprint,** Electronic Text's **WordCruncher,**

Jurisoft's **CompareRite.**

8. The Media Lab's **Nicholas Negroponte,** Bitstream's type design whiz **Matthew Carter,** HyperCard Handbook's **Danny Goodman,** Will Your Grandchildren Speak Chinese? about Chinese wordprocessing, **Whatever Happened to CD-I?** The Logos machine translation story, wordprocessing technology for the blind, 15 tips for using **Microsoft Word,** and Reviews of WordStar 2000, **PageMaker 3.0,** Procomm Plus, SideKick Plus, Radius greytone display, Total Word, WordPerfect for the Mac, and a preview of **Grammatik III.**

9. First issue after merger with Language Monthly. New LinguaFranca and Mondogloss sections on multilingual wordworking. News about the grammar checking rivalry getting tense. Features include Vicky Hearne's **rant against Controlled English,** How the Japanese do it (wordprocessing [wapuro] that is), Computer Aided Language Learning, 15 tips for using **Ventura Publisher.** Reviews on multiscrit wordprocessors, **IZE,** Megachomp's **Russian wordprocessor,** The Fifth Generation by J. Marshall Unger.

10. Cover story: **The state of the art of speech recognition.** Exclusive report on IBM's natural language research, and **Critique,** its functioning grammar checker.

How to build a **translator workstation on the Mac.** Stars: syntactician Laurence Danlos, Matteo's John Chandioux, and **Rolodex.** 15 tips for using **PageMaker.** Reviews: Lotus Agenda; **Shoshana Zuboff's** "In the Age of the Smart Machine: The Future of Work and Power."

11. Cover on hypertext inventor **Ted Nelson.** Features: BBC's **Domesday** interactive video project; **Neural Networks** and language processing; Ericsson's **Interdoc** indexing and storage facility; 15 tips on using **Xywrite.** Stars on speech recognition whiz Joseph Mariani, language researchers at **Cap Sogeti.** Reviews: **Micro Oxford Concordance Program;** WordMark; **AskSam;** Sita Language Learning System.

12. Special documentation issue. The current state of the art of making manuals. Documentation at **BMW Apollo's** online documentation system. **Documentation in Space** – what they'll use on the space station. Stars: Collin's chief dictionary publisher **Pierre Cousin,** SITE, the UN's chief terminologist Harald Hille. 15 tips for using WordPerfect. Reviews: Ventura 2.0, Illustrator and Freehand, Vuwriter, Steve Jobs and John Sculley. Jef Raskin's rant against Hypertext.

13. **Conquering 1992.** An in-depth look at Europe's Multilingual Challenge; EC multilingual tech

policy; 8 case histories on **how companies are already handling the multilingual challenge;** Resource Guide on technology for handling the multi-lingual challenge; Star on Dan Winkler, co-creator of HyperCard.

14. **State of the Art** issue. First comprehensive look at **Japan's mammoth machine translation effort;** the First Electric Word Awards for Technical Excellence – we pick the **best wordcrunching products in the word;** word-

processing standards **CALS/SGML;** the man behind **Hidden Agenda;** a visit to WordPerfect in Utah; comparison of **OCR products for the Mac;** and the BBC's official de-fucker.

15. **Back to School** issue. **Alan Kay's Vivarium** project. Interactive multimedia. Special needs. Grammar checking in education. **CALL Resource Guide.** Stars: Wan Runnan, Logotron's Christopher Roper, Reference Software's Grammatik III.

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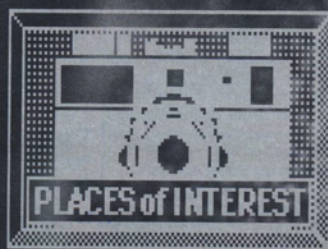
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Vannevar Bush sought to disentangle mechanized systems from one another, to present all information requirements through one unified system in which the conceptual framework for searching for knowledge belongs to, and is driven by, the user.



Emancipation From Linear Slavery

By Pat Baird

Hypertext, a dramatically different way of linking and presenting disparate pieces of information via the computer, is a hot topic among word-workers hungry for "non-linear" access to information. And one of hypertext's most exciting potential applications is with the very large databases that are typically accessible on data communications networks or CD-ROM.

Electric Word thought the time was now right to examine hypertext's over-the-counter reality as well as its highflying concepts. So we turned to Strathclyde University's Patricia Baird, who here surveys the development of hypertext from its spiritual birth in the 1940s to the projected "docuverse" of the near future.

Baird also takes the wraps off three commercial hypertext products currently on the market — along with a sideways glance at how it's beginning to be used as a front end to online information.

ANNEVAR BUSH, HYPERTEXT PIONEER

Let's begin with the man who, if citation count is indicative of anything, produced the seminal paper in the field of hypertext.

Vannevar Bush, computer design pioneer, was appointed by President Roosevelt in 1941 as the first Director of the Office of Scientific Research and Development. He identifies the problems involved in the transmission of an ever-increasing volume of accumulated knowledge — and presents the need for alternative information systems — better than anyone else:

"Science has provided the swiftest communication between individuals; it has provided a record of ideas and has enabled man to manipulate and to make extracts from that record so that knowledge evolves and endures throughout the life of a race rather than an individual. There is a growing mountain of research.

"But there is increased evidence that we are being bogged down... The investigator is staggered by the findings and conclusions of thousands of other workers — conclusions which he cannot find time to grasp, much less to remember, as they appear."

(Atlantic Monthly, July 1945)

Bush envisaged a remedy: a virtual system which he called Memex. This would resemble a mechanized library for the researchers working with him. It would be a system for storing documents, records, and communications, coded and linked so as to be "an enlarged intimate supplement to the memory."

Memex would be organized by linking disparate items in the system. The linkages would anticipate patterns of association and support random thinking in the user's mind. The end-product would be a non-linear document.

The concepts of linkage and elaboration are not new. Cross references, marginal glosses, footnotes, and glossaries have been used for as long as we have had a recorded literature. Bush's system was new in its mechanization and its use of any one of a multitude of documents to supplement, complement, or augment the original.

Traditionally, a user has to fit into, and be guided through, the restrictive frameworks established by others. Bush sought to disentangle mechanized systems from one another, to present all information requirements through one unified system in which the conceptual framework for searching for knowledge belongs to, and is driven by, the user.

The computer of today is superbly suited to be the foundation for the system which Bush envis-

aged. His ideas have therefore formed the kernel of modern hypertext systems.

THE SECOND WAVE — DOUGLAS ENGLEBART AND NLS

The notion of augmentation was taken up by Douglas Englebart, who is credited with inventing wordprocessing, the concept of onscreen windows, and the mouse. Unlike others, who saw humans as having to adapt to the new technologies proliferating in the 1960s, Englebart championed the idea of the computer augmenting the human intellect. As he put it in 1963:

"The components of an augmentation system are the bundle of all the things that can be added to what a human is genetically endowed with, the purpose of which is to augment those basic human capabilities in order to maximize the capabilities that a human or human organization can apply to the problems and goals of human society."

Englebart proposed a system in which computer and user represented the dynamics of a synergistic environment which would result in the amplification or augmentation of human intelligence. He developed the NLS (oNLine System) by creating a database of files called statements, superimposed with referential links. Filtering capabilities allowed specific sections or views to be displayed onscreen.

The system, designed initially for the SRI Group at Stanford University, forged the way for connecting and sharing ideas in a multi-user environment. It was the first step towards computer-supported conferencing and collaborative research.

NLS has grown and developed from those early years, and is now marketed commercially as Augment (or NLS Augment) by McDonnell Douglas.

THE XANADU DOCUVERSE

The originator of the term "hypertext" is Ted Nelson. He was characterized in the Economist in 1986 as a "gadfly, prophet and self-confessed computer crackpot, with a lifetime's obsession wrapped up in an enormous program called ... Xanadu."

Nelson's ideas are well-documented. In his book "Literary Machines," he defines hypertext as:

"Non-sequential writing — text that branches and allows choices to the reader, best read at an interactive screen... readers choose a pathway, may follow their interests or current line of thought in a way heretofore considered impossible."

The objective of Nelson's Xanadu project is the ultimate publishing system, a "docuverse." This global information system will encourage users to access original documents, follow links to others and leave "footprints" of information or commen-

tary, which future users can track if they wish.

Intellectual property rights will be built into the system, with royalties automatically charged for each byte of information used. The corpus of the world's literature, where everybody is an author and/or reader, will be contained in one computer-supported system.

It is significant that Xanadu is named after Coleridge's unfinished poem; Nelson's system has been under continuous development for almost thirty years. However, it is also significant that Autodesk, the world's leading producer of CAD systems, has set up the Xanadu Operating Company as a subsidiary of its mighty operation.

Xanadu is to be launched in the first quarter of 1990 as a document-server program for both single users and LANs. Included will be Exemplar Front End groupware as well as the programming code. Thereafter, the schedule will be towards third-party application programs from other developers for all purposes, leading to a multi-server version.

This will be a storage and delivery program uniting all data into a single tissue, deliverable from multiple servers through the BEBE (Back End to Back End) protocol. The royalty feature will be fully fledged in 1991, and public access to open hypertext publishing begins in 1992 – "the paradigm of the twenty-first century".

POST-LINEAR PROBLEMS ...

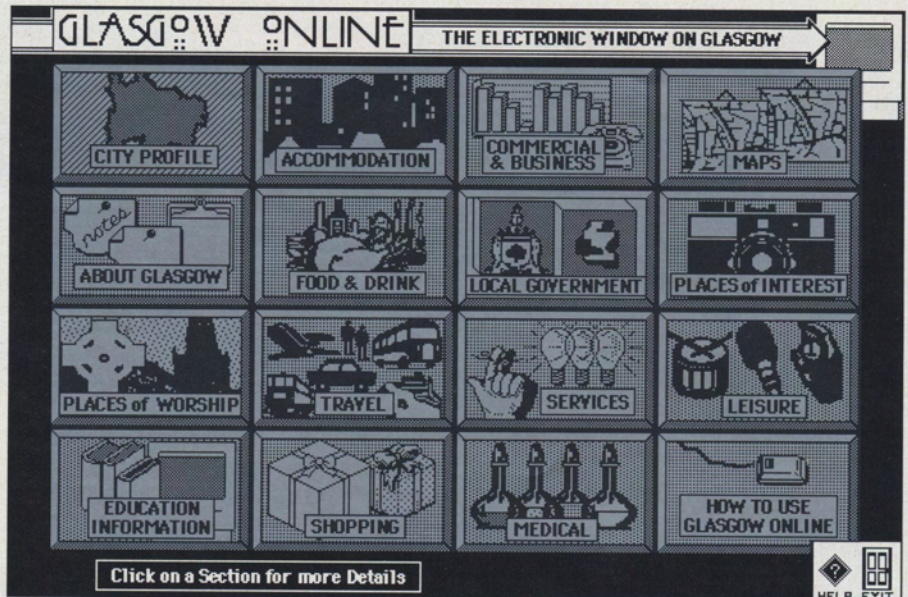
Hypertext developers have long aspired to friendly interfaces, natural language information retrieval, selective information retrieval, enabling technologies – anything that allows access to the ever-increasing volume of information to help us to learn and acquire new knowledge.

Although non-linearity may mirror the way we think, for centuries we have learned to read and gain knowledge through the linear presentation of text. We know how to proceed through a print-on-paper document – in the western tradition, from left to right across the page, from top to bottom of the page, observing the cues and clues, the punctuation marks, syntactic arrangements, page numbers, and numbered references – all there as supplementary guides to our comprehension of the text.

Non-linearity presents a number of dilemmas:

- How do users find their way through a mass of seemingly unstructured material?
- How do "authors" of systems guide users through hypertexts without compromising the unique characteristic, i.e., freedom of navigation?
- What are the cognitive issues in a hypertext learning environment?
- How do users recover if they get lost in the hyperdocument?
- Do hypertexts offer random walking or structured serendipity?
- Do users want all of the choices all of the time, or does this lead to confusion?

"Ironically, this works in a sense against the credibility of the software. Prospective users find it hard to accept that a very powerful tool for the management of information is being given away for the cost of zero."



Glasgow Online, the main menu

- The debate on text vs. graphics for conveying meaning.

THE HYPERSTUFF

Hypertext activity has mushroomed in the past few years thanks to the spread of personal computers with increased processing capabilities.

New hypertext software has been hitting the market since the mid-1980s. Jeff Conklin's survey of "Hyperware" in IEEE Computer (9/87) covers the field up to September 1987. So the concentration here is on major developments and applications since then. Principally: OWL's Guide; Apple's HyperCard; and IBM's LinkWay.

GUIDE

Background Guide is the first commercial implementation of hypertext for the personal computer. It is designed to work in much the same way as humans think, namely with the ability to freely associate pieces of information.

Guide has its roots in the academic research of Peter Brown at Kent University (UK). It was turned into a commercial entity with the help of two Scottish centers, the Turing Institute at Strathclyde University, Glasgow, and the Artificial Intelligence Applications Institute in Edinburgh.

It began life as a commercial product for the Apple Macintosh in September 1986. A version for the PC/compatible under Microsoft Windows followed in July 1987.

Customized documents can be created by embedding links within text. Readers navigate through the corpus of information by pointing and clicking on buttons or hotspots by means of a

mouse or alternative pointing device such as a rollerball or a touch-sensitive screen.

Like the other hypertext systems discussed below, Guide can combine text, graphics, pictures and motion video in one userfriendly environment.

Guide 2.0 is available in both IBM PC and Macintosh versions. The PC version's suggested retail price is US\$275. It requires a PC AT or PS/2 with 640K of memory, a hard drive, graphics and mouse. For the Mac, the suggested price is US\$199.95, requiring 512K of memory and a hard drive.

Outline There are three key elements to an understanding of Guide: the metaphor, the links, and the graphical user interface.

A notecard metaphor links screens of information while a document metaphor, not restricted to the screen, acts as a gateway to reference information lying perhaps several layers below in other documents. Not only is the link to the desired related document, but to an exact point in the document.

The reference link connects a point in a document with one in the same (or a different) document. Note links can temporarily annotate a document while maintaining the integrity of text. The annotation may appear in a pop-up window and include items such as footnotes, glossary information, and illustrations.

There are also links which expand or replace the original link button with more information, allowing the author to create a multi-layered document. Finally, command links allow users to access and control external media such as CD-ROM or interactive video discs.

Since Guide runs under Microsoft Windows on DOS computers and the standard Macintosh operating system, text and graphics can easily be combined. Linking capabilities are possible with graphics as well as text. Multiple open windows allow the user to view related information without closing the original document.

Applications There are numerous interesting Guide hypertext applications.

Ford, OWL and Hewlett-Packard have jointly developed the Service Bay Diagnostic System. This

HYPERTEXT ONLINE

By Pat Baird

Accessing online databases still strikes dread in the hearts of greenhorn users. "Too hard!" they squeal. By now it must be clear to all concerned that the development of tools to make online easier is the sine qua non to its ever becoming a pervasive technology. Hypertext may well prove to be just the tool for the job.

Although the market for such online services as databases, bulletin boards, and electronic mail has grown in the past decade, this growth has been inhibited by the difficulties experienced by users in retrieving information. Users want simplicity and results, not mysteries and complexities. They want systems that will offer them data as simply and as intuitively as possible.

Yet problems abound. To begin with, it's not always easy to establish the initial online link. Second, in the case of online databases, inexperienced users generally experience difficulties when the host system requires search terms to be specified in synthetic command languages. These vary greatly from service to service and rarely resemble natural language. In addition, such languages generally have extremely strict syntactic structures, highly sensitive to error.

Other factors that deter the lay user from using online information resources include: insufficient knowledge of the range and appropriateness of databases, of which there are now more than 4,200 worldwide; lack of expertise in formulating a search strategy, that is, selecting terms to match information needs; the need to make allowances for variations in terms, using all possible synonyms; and the need to be aware of collateral relationships between terms.

The results are under-utilization and the ineffective exploitation of valuable information resources. In turn, potential revenues and opportunities are lost for network operators and infor-

mation providers.

Strathclyde University's Department of Information Science is currently participating in two areas of research aimed at facilitating access to very large databases: SIMPR and the British Telecom HyperCard project.

SIMPR (Structured Information Management: Processing and Retrieval) is an ESPRIT-funded project led by the Danish-based software and systems house CRI. Its goal is the development of new techniques for the management of text stored in databases, both online and on optical media. It is investigating the automatic indexing of text using natural language and research subject classification methodologies which – it is hoped – will lead to the design, development, and evaluation of expert systems to classify texts.

The project's eventual intention is to produce a system for creating and managing very large databases. This will resemble a hypertext system in its ability to link items of information at different levels. But it will aid the user by establishing links automatically according to a subject analysis of text and conformity with user-specified information models.

The second area of research at Strathclyde concerns an evaluation of Apple's HyperCard software as a front end to British Telecoms electronic information services such as electronic mail and online databases.

An evaluation of the potential of hypertext to provide interfaces sufficiently userfriendly to appeal to non-specialist users formed the basis of the initial research. The project now concentrates on three main objectives:

- developing and refining the functionality of the interface to Telecom Gold, enabling access entirely through point-and-click (mouse, tracker ball, or touch screen);

- analyzing the problems of retrieving information from online hosts (technical specifications, data structures, viewing versus downloading information);

- examining the feasibility of using HyperCard efficiently as an interface to full-text databases and exploiting its hypertext capabilities to generate personalized information at local level (an analysis of user requirements within business enterprises will be undertaken along with user testing throughout project development).

The eventual aim of the British Telecom project is to offer the end user a transparent, seamless information environment capable of supporting local processing and manipulation. Whether this is possible or not remains to be seen. Research at Rutgers University (New Brunswick, NJ, USA) suggests that, even with a very userfriendly front end like HyperCard, the main problems for the inexperienced end user lie in the inability to construct definitive search statements and effectively use Boolean logic.

However, if these problems can be overcome, searching from a full-text database, using HyperCard as a front end, may result in a locally generated database of downloaded items. HyperCard's linking capabilities at that stage could be used to massage the local database into a customized, desktop hypertext, integrating relevant existing data with the downloaded information.

End users who are still resistant to online services need to be convinced that not only can an intelligent, userfriendly interface make it easier for them to get access to information they know exists, but to be guided to information they do not know about and are therefore unable to ask for. As always, the most important factor is relevant feedback on the use of services.

computerized mechanic's system gives access to diagnostics information with shop manuals, schematics and service bulletins stored on CD-ROM.

HyperPath, a multimedia application using Guide, was developed by Dr. Alonso and his students at the Pathology Department of Cornell University. This hypertext integrates information from illustrations, still photos, slides, video, and vast amounts of text to help pathology students learn some of the 47,000 facts they must absorb in their first two years at medical college.

Using Guide hypertext links and a worldwide communication network, the Business Research Institute instantly puts the latest technological information into the hands of Fortune 500 executives across the USA. BRI's business is keeping top MIS and corporate management up to date with advances in business and technical information systems.

A further Guide multimedia application, CD-WORD, contains several versions of the Bible (including the original Greek New Testament) and

a collection of major theological reference books on one CD-ROM.

HYPERCARD

Background HyperCard was launched by Apple in August 1987. The program was developed by a team led by Bill Atkinson, a whiz graphics programmer, and one of the original contributors to the Macintosh operating system. It has been described as a "software construction kit" or an electronic erector set.

Like Guide, HyperCard is an authoring tool with which a wide range of applications can be developed, from simple glossaries of terms to complex interactive tutorial systems, technical documentation systems, and large-scale community or corporate information systems.

HyperCard is bundled by Apple with every Macintosh sold. Existing owners can purchase HyperCard from any Apple dealer for US\$49. Ironically, in a sense, this works against the credibility

of the software. Prospective users find it hard to accept that a very powerful tool for the management of information is being given away for free.

Outline The governing metaphor of HyperCard is, of course, the common 5 x 3 inch index card. Information is presented on cards, and cards are gathered into stacks. Links can be created within and between cards in stacks, by creating buttons or hotspots. These are activated by pointing and clicking with the mouse or other pointing device.

However, buttons not only link ideas from one card to another. They are also the driving mechanisms for controlling sound, animation and external devices such as Interactive Video or CD-ROM, and launching other programs.

HyperCard offers basic text editing capabilities such as cut-and-paste, wordwrap, and different fonts. Text is put into fields, which can scroll to accommodate large documents.

The graphics capability within the system allows clip art and scanned images to be incorpo-

"Non-sequential writing – text that branches and allows choices to the reader, best read at an interactive screen... readers choose a pathway, may follow their interests or current line of thought in a way heretofore considered impossible."

rated as well as generated within the program with the "paint" tools. By writing scripts in HyperCard's embedded programming language HyperTalk, additional features such as animation, simulation, tracking, and multimedia control can be added.

Applications HyperCard is a very valuable authoring tool requiring very little technical knowhow at the basic level. Applications are restricted only by the needs and the imagination of authors. The program's versatility is demonstrated by the wealth of applications available.

Apple's product is used at all levels of education, particularly within the USA. The Interactive Multimedia Group at Cupertino, California, are more than willing to help with new developments. They produce a step-by-step videotape and Help stack showing the developer how to use HyperCard as a videodisk driver. To control external media through means not available in HyperTalk or otherwise expand its functionality, it is possible to incorporate routines and functions written in conventional programming languages.

It is estimated that there are about 200,000 third party developments centered on HyperCard worldwide. In Brussels, the Bureau Marcel Van Dijk has developed Chronicle, a yearbook of news and events using HyperCard as a front end to CD-ROM. The system provides text, graphics, photographs and sound, searchable in seven languages by subject, date, country, or named individual.

In London, the BBC's Interactive Television Unit has produced a Macintosh version of the EcoDisc in CD-ROM and videodisk format. The BBC is working with the Apple Multimedia Laboratory in California on the Future Worlds Project, an interactive multimedia prototype. This is a research project rather than a commercial endeavor, intended to aid and explore new ideas and design in interactive systems.

Researchers at Dartmouth College (New Hampshire, USA) have developed an interactive program for learning the Chinese language, called Hansi Assistant, using HyperCard and CD-ROM. Each character is shown brush stroke by brush stroke, coupled with its pronunciation by Chinese radio announcers. The program will also offer translation and phonetics breakdown.

Strathclyde University's Department of Information Science has been researching HyperCard development for two years, and has produced Glasgow Online. This is a public domain utility of community information. It uses text, animation, sound, and graphics. The system is an updatable utility and is available at various access points throughout Glasgow.

In Cambridge, England, the huge systems house Logica has recently announced HITS (HyperCard Intelligent Training System). Logica's approach involves the use of HyperTalk and Object Pascal to construct tools for authoring courseware for stu-

dents and teachers. Monitoring techniques will be built in to assess students' progress in order to determine the level of teaching most appropriate to their needs.

Other developments include SuperCard – a third party program from HyperCard which allows color. It is being marketed by Silicon Beach of San Diego, California. HyperWindows is an XCMD which enables the opening of multiple, overlapping windows within HyperCard.

Other assorted applications include: HyperKRS, a knowledge retrieval system which indexes and retrieves text up to 200 times faster than the "Find" function in HyperCard; Archie, an optical archival and information management system; and Logotron's Hyperbook to aid the power of free-text searching.

Finally, there's a HyperCard clone for the PC called HyperPAD, and an announcement that Spinnaker Software, in California, is set to release WildCard in the winter of 1989 for about US\$100, which would allow HyperCard stacks to be read into the MS-DOS environment.

LINKWAY

Background At a recent conference on interactive learning in Glasgow, I finally heard what I thought I would never hear: IBM paying tribute to Apple. Without Apple's HyperCard, they declared, IBM could never have developed its own hypertext tool, LinkWay, launched this year.

In LinkWay, data is organized in a similar fashion to HyperCard but, since it is only an 80 Kb program (IBM sought to limit memory requirements to enable it to run on low capacity machines) compared to HyperCard's 380 Kb, it cannot match all the features of HyperCard.

LinkWay is available from IBM at a cost of US\$300, or US\$2,000 for a site license. It includes utilities such as a text editor, a paint program, a font editor, and a number of sample folders.

LinkWay's equivalent to the stack is the folder. The program works through a variety of pull-down menus, onscreen buttons and pop-ups, all activated by the mouse.

Information is arranged in folders and then in pages. Pages consist of fields, buttons and pictures. Each folder is read from disk to memory when it is accessed, and if the information in any folder is greater than 250 Kb, it must be broken down into

separate folders.

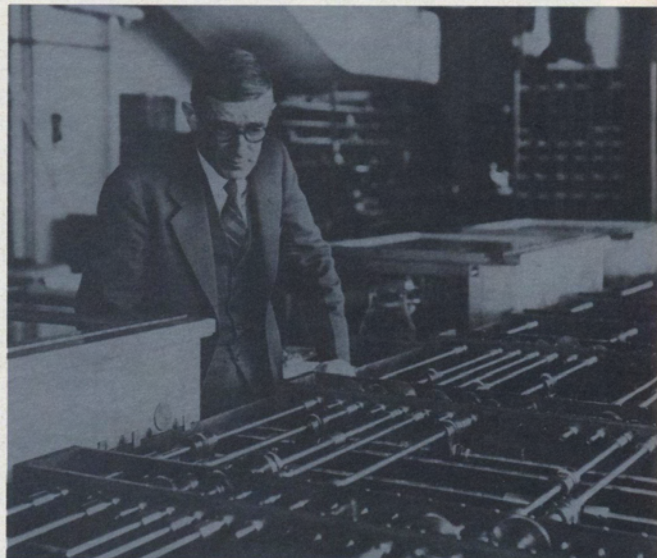
Background fields in HyperCard act as unique fields for each card in the stack. In LinkWay, "base pages" are used like backgrounds, but base page fields contain the same information on all pages in the folder. Pictures are not stored as parts of cards, but in separate picture files on disk, and read when required.

HyperCard is probably more versatile than LinkWay. However, it is only a matter of time before we see the same proliferation of applications as are currently available with HyperCard.

Applications Various courseware authoring tools, have been produced to add to and enhance the available software.

VideoWorks Interactive provides two-dimensional animation. Course of Action allows authors to animate, simulate and digitize sound with real voices without generating any code. Course Builder, a graphics-based authoring tool, allows creative development without programming problems.

PHOTO: THE MIT MUSEUM, CAMBRIDGE MASSACHUSETTS



We've come a long way since Vannevar Bush. We've done what he suggested: we've learnt from the agility of the human mind, whose speed of action, intricacy of associations, and detail of mental pictures he regarded as "awe-inspiring beyond all else in nature."

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Language Technology

ELECTRIC WORD

NOVEMBER / DECEMBER 1989 #16

TERMDOK: THE ULTIMATE TRANSLATOR'S TOOL?

Most industry observers agree: CD-ROM has reached that stage of critical mass. In real terms, the volume of titles being published is such that specialized fields like multilingual lexicology and terminology management are now winning serious representation.

Electric Word's Scandinavia correspondent Tim Davies recently trotted Walter's multilingual heavyweight Termdok through its paces. He reports back on this most recent emancipation from the confines of paper, discussing how it might serve today's microprocessor-compatible translator.

Introduced in January 1988 by Sweden's Walters Lexikon and Tekniska Nomenklaturcentralen (TNC), with the aim of providing access to all TNC's material, Walters describes the TERMDOK CD-ROM as "probably the largest PC-accessible multilingual technical termbank available."

The Swedish retrieval program Optosof is used, and you can select an English, French, or Swedish version when you install it. It requires approximately 360 Kb of disk space. The program can be run alone or together with your wp program, the latter enabling you to cut and paste text at cursor location. (TERMDOK is activated online by pressing CTRL-F6.)

Both free and structured searching are supported. In other words, you could search for a word in any context or within a specific context/language/field. Retrieval is effected by search menus, the results being screened in windows. Help texts are available via F1 (in one of three languages). There is also a brief tutorial.

The termbank consists of items classified under main term, synonym, definition, equivalents in other languages, etc. Scandinavian letters are interchangeable: e.g. search for "primär" traces "primär" and vice versa. Other digraphs with grave, acute, circumflex or cedilla are treated as if unaccented (e.g. ide/idé, maçon/macon).

Searching can be done by term, definition, or translation. Having found the info, you can then print it (Print Screen) or transfer it to disk/HD.

Each entry gives the Swedish (main term with grammatical info, abbreviated and related forms, synonyms, references, applications, context) and translations. These vary in number, as equivalents are not given consistently for every term. Reference numbers are also given for relevant documents, plus a classification code.

TERMDOK contains a total of over 225,000 technical terms with definitions, synonyms, related concepts and translations to English, French, German, Swedish, Norwegian, Danish, Finnish, and Russian. Searches are possible in all languages.

Fields include energy, environment,

building, materials and chemistry. In fact, TERMDOK incorporates data from seven termbanks: three Swedish, one Finnish,

one Norwegian, one French, and one Canadian. These are:

- TNC's wordlists (glossaries of about 28,000 terms, including many specialist lists such as hydrobiological terms, brewing, petroleum, space, nuclear energy, textiles, forestry, etc. Mainly in Swedish, but with some Norwegian terms).
- TNC's excerpts: 6,000 items from magazines, journals, reports, manuals.
- Swedish Standardization Committee's 17,000 terms with definitions from current Swedish standards since 1986.
- Termbase of RTT (Norwegian Council for Technical Terminology): 25,000 terms from 33 glossaries.
- TEPA, Finland: 9,000 terms from Finnish standards, published by Centralen för Teknisk Terminologi. Some in Finnish, but many with Swedish definitions.
- Termium: 100,000 English-French terms from the Canadian government's official termbank.
- Normaterm - from AFNOR, Association Française de Normalisation: 47,000 French-English terms from this French language termbank.

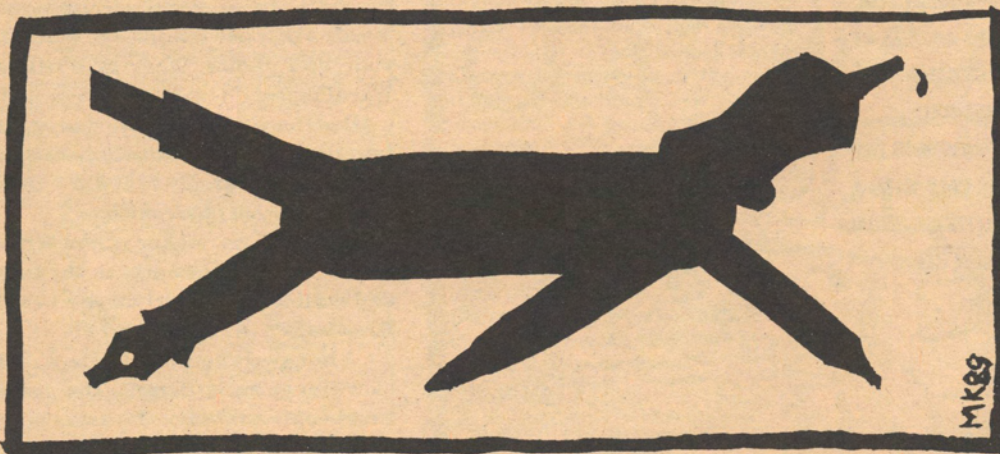
TERMDOK is a well-designed, thoroughly researched, and systematically presented

tool, both for the linguist and for the scientific specialist. Without doubt, it will be most useful for those dealing with Swedish, English and French. Inclusion of the other languages is more haphazard (e.g. Russian terms, in transliterated form, are included only where the Finnish collaborator concerned knew their equivalents).

Retrieval time is rated at a maximum 30 seconds for all databases. (Our search for the English compound "fuel cell" took only three seconds.) Unless you're planning to buy your next computer from NASA, I'd say that was extremely fast, given the volume of data involved.

If, by way of comparison, I search for a term using the Dutch-produced INK online terminology software, TermTracer, a complete search for a word including a commonly occurring root (e.g., "computer")

TERMDOK IS A WELL-DESIGNED, THOROUGHLY RESEARCHED, AND SYSTEMATICALLY PRESENTED TOOL, BOTH FOR THE LINGUIST AND FOR THE SCIENTIFIC SPECIALIST.



MAX KISMAN

will take anything up to 15 seconds, depending on how many terms I have added since acquiring the system.

The system of embedded windows (comparable again to INK's TermTracer) is easy to work with, while the variation in colors (for those no longer using a Flintstone monochrome VDU) makes it easy on the eye. In practice, the windows allow you to explore one step at a time, e.g. trace a term by language, then go on to the definition, then locate the source.

Remember, of course, that unlike a user-modifiable system such as INK's, terms cannot be added to or modified in a CD database. (Some CD systems enable you to bookmark entries, but as far as I know, this is not a feature of TERMDOK.) The value of the system therefore lies in the number of specialist areas included which the translator in question can use. Since the contents of the database are broken down by country of origin and source language rather than field, this might prove difficult to evaluate before you actually buy and start using the system.

Generally, what CD-ware offers over traditional floppy-ware is one hell of a lot of data crammed into very little space (this CD contains approx. 682 Mb or 340,000 compact A4 pages). And it doesn't come

THE PRICE QUOTED FOR EACH PRODUCT IS THAT CHARGED IN THE COUNTRY OF ORIGIN.



cheap.

Hardware requirements: PC/compatible with a minimum 640 Kb of RAM, harddisk or twin floppy drives, EGA card recommended, plus a CD drive supporting Microsoft CD-ROM extensions.

—Tim Davies

Walters Lexicon Co., Södermalmstorg 8,
17800 Stockholm, Sweden. Tel: +46 (08)
439 510. Price: DKK 7,600 (US\$ 920).

HYPERTEXT TOOL BITES MAN

THIS HYPERTOOL IS HYPER-CONFUSING. IT REQUIRES A LARGE TIME INVESTMENT FOR THE AUTHOR OF A DOCUMENT, WITHOUT PROVIDING THE READER WITH A BETTER INFORMATION VEHICLE.

ArchiText can best be described as an authoring/reading system for text and graphics. Text and/or graphics are organized into basic units called nodes, and the nodes are interconnected through links into maps. Maps can be graphically displayed in a typically Macintosh fashion. These maps, links, and nodes are designed by the author of an ArchiText document and then read by whomsoever the document is destined for.

Readers don't need the ArchiText application—a separate Viewer program is provided. Authors can limit readers' access to various nodes, set time limits, and get feedback from a viewer record. Viewer records summarize the movement of the reader through the document—the path taken to visit a node or map, and the time spent there.

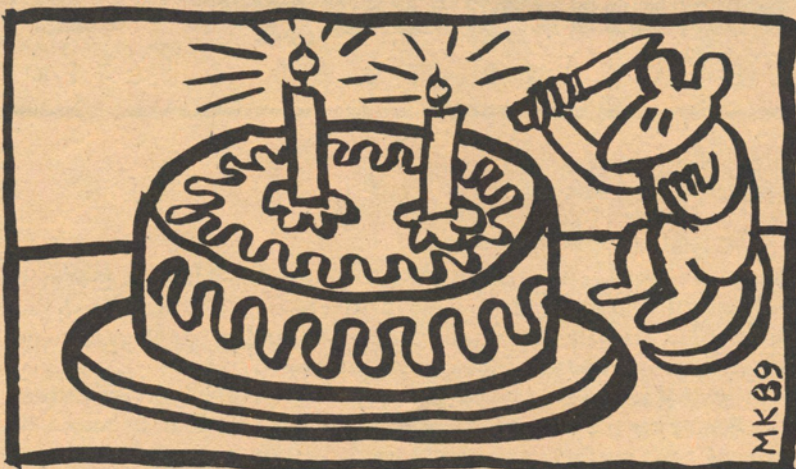
Authoring tools include various methods of splitting up text documents into individual nodes by keywords, establishing links, and Boolean searching. In version 2.0, a list of keyword frequencies is available, and multiple external documents can be used—the program can access an MS Word file, for instance, without storing a copy (and taking up a lot of disk space) within the ArchiText document.

When readers open an ArchiText document, they see a screen with a list of nodes at the top left, the maps at the bottom left, and the node or map being viewed on the right-hand side of the screen. These elements can be resized, but not moved elsewhere. Then other nodes or maps can be selected and traversed, and the links between nodes can be seen.

All right, what is it good for? Since the reader's progress through the document can be recorded, the publishers suggest that ArchiText could be used for education (evaluating the time spent on various lesson topics) and market research (promotional info, with a record of the reader's interest in each product), among other (unspecified) things.

Still wondering whether you should buy this program, spend the time learning it, and start authoring ArchiText documents for fame and fortune?

As a computer nerd, I can firmly state that this program is well written. No bombs, correct usage of the sacred Macintosh interface, menus and commands to the heart's desire. But as a wordcruncher, I have my doubts.



MAX KISMAN

MACWRITE II: AGING GRACEFULLY

The Mac wordprocessor has become a highly-evolved beast. Choosing which one you use is now a matter of secondary considerations: a specialized feature, or circumstances. Does everyone around you use Word? Then use ubiquitous Word. Don't have a harddisk? WriteNow is your best choice. Work in a DOS environment? Get compatible with WordPerfect. Megabytes to spare? Crank up FullWrite.

All of the abovementioned programs and others offer equivalent basic functionality, and—it does bear repeating—you can switch from one to another without any real difficulties.

So, just some observations:

- When Claris, maker of MacWrite II, cut its formal ties with Apple, it didn't relinquish smarts in the interface department. The styles sheet and mail merge functions are beautifully implemented in MacWrite II. Somebody's thinking hard about these things.

- A few years ago, MacWrite was the *de facto* standard Mac wp format. Now things are different. The progenitors of MacWrite II acknowledge that people *might* now be using other wp programs, and allow MacWrite II files to be saved in other formats. No airs here; it's called aging with grace.

- Like Word, Microlytics' WordFinder thesaurus is bundled with MacWrite II. If you use a thesaurus, you install it. If you don't, no extra baggage hanging around. Let's have more of this. Wp programs will inevitably be getting more complex, but why should your wp program be saddled with, for example, a formula editor or a drawing module if you never use them? Give us the choice.

Enough said.

—Colin Brace

Claris Corp., 440 Clyde Ave, Mountain View, CA 94303, USA. Tel: +1 (415) 960-1500. Price: US\$249.

First, the language used in the manual and the program commands are excellent examples of technobabble. From the foreword of the manual: "*ArchiText provides a non-intrusive, easy-to-operate mechanism that allows the rapid retrieval, identification, organization, and presentation of information, heretofore available only in linear text form. Design and software engineering issues have interacted to effect product evolution from concept to finished system; of equal importance was the collective input of the many who assisted us.*" Got that?

I tried to cut through this dense verbiage and learn how to free ideas heretofore

imprisoned in linear text form. I found this tool to be so hard to use that I couldn't imagine an uninitiated reader sitting down in front of an ArchiText document and blithely traversing its nodes and maps, at least not without a half-day's training.

In my opinion, this hypertool is hyper-confusing. It requires a large time investment for the author of a document, without providing the reader with a better information vehicle. Some very basic functions have been overlooked, like an "undo" command when you move one of those cute little boxes in the map screen the wrong way, or some kind of intuitively



ELECTRIC WORD'S STAR UPDATE – SONAR PROFESSIONAL 3.1

Sonar Professional 3.0 was reviewed in Electric Word #15. Since then, Version 3.1 has arrived. Electric Word's Benelux correspondent and vociferous spokesman for the Free Text Search movement, John Seifarth, was the reviewer of 3.0. He agreed to take a glance at 3.1 too, and came away dazzled.

In the software industry, an incremental release is usually written to fix bugs, to smooth the operation of a feature, or to be compatible with a new CPU. How often have you seen a version 1.0 quickly superseded by version 1.1 after real world experience has uncovered a buglist as long as your small intestine?

The people at Virginia Systems don't seem to understand this concept. Quietly, with no fanfare or hype, they've rewritten an already powerful program into an elegant, compact, truly useful tool for wordworkers, the likes of which I've never seen before on a micro: the Sonar Professional High-Speed Text Retrieval program, version 3.1.

I wrote a pretty snotty review of Sonar Pro version 3.0 in Electric Word #15, lambasting its interface for Macintosh guideline heresy and its documentation for shallowness. When I received version 3.1, I was not expecting what I saw.

The manual cover was identical. No "New & Improved Version!" sticker, and it's actually thinner than for version 3.0 (down to 110 pages from 148). A glance at the cover page got me wondering, though: version 3.0 came with a first edition manual dated July 1988, while version 3.1 came with a May 1989 third edition. Who in their right mind rewrites a manual twice in 10 months? Perfectionists, that's who. The new manual is vastly improved: well-organized, clear, and readable.

Sonar Pro is now compiled; it's smaller and faster. While in nerd mode, I should mention, too, that all Macintosh interface paraphernalia (alerts, menus, dialog boxes, etc.) are now implemented as standard Macintosh resources. This means that the program's "look and feel" is now completely Mac-like, and that foreign language versions can be localized

as usual for the international market, etc. Now, on to the good stuff.

What else is new? More power! More speed! New features! No hyperHype! This is a great program! Let's take a look at improvements in version 3.1 before going through the new features:

- *File formats supported.* If you can't read it, you can't use it. This holds for both programs and humans. In addition to the formats supported in version 3.0 (MacWrite, WriteNow, Word, Works, WordPerfect, Ready, Set, Go! 4, More, Trapeze, and MS-DOS text only), Sonar Pro 3.1 currently can handle PageMaker and FullWrite files. The real surprise is that for PageMaker, WordPerfect, and Word 4 files, graphics are also supported. When you search for a phrase that is a picture caption, for example, you can open a window and see the illustration on screen.

- *Speed.* Sonar Pro 3.0 was pretty fast, ripping through about 250,000 pages per minute. Version 3.1 has upped that to 600,000 pages per minute, and search time increases logarithmically with the quantity searched. This means it only takes slightly more time to search through much larger amounts of text.

- *Windows and scroll bars.* When a search phrase has been found, the document is displayed on the screen. In version 3.1, standard Mac scroll bars allow you to look above and below the selection. The search phrase, picture, comments, and document windows are standard resizable, movable Mac windows.

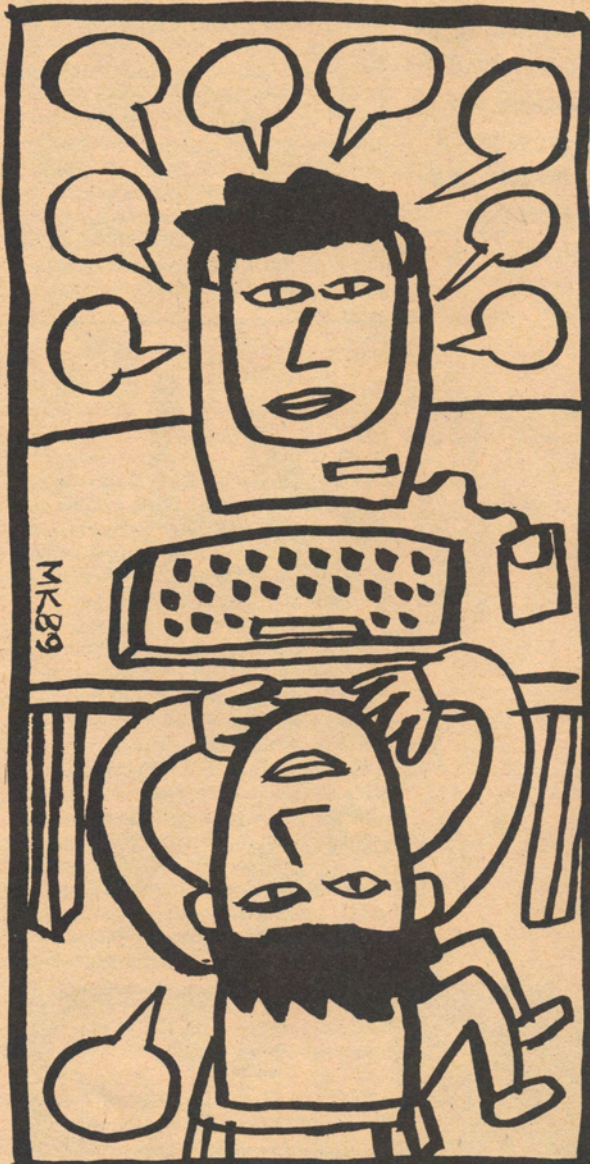
- *"Associated words" and "Synonyms."* These features impressed me the most. Associated words are an alphabetical list of the words found in proximity to the search phrase. The default distance is 100 words, but you can change that to fit your needs. When you scan a list of words, you can quickly choose those that are significant and see them in context, or even see what words are associated with the associated words! There's no limit to tracking word associations.

The Synonyms option is unique to Sonar Pro 3.1, and very significant for multilingual wordworkers. Let's take an example: assume you have a large volume of documents on agriculture and the food industry in English, French, German, and Dutch. You can prepare a file with a list of multilingual synonyms like "cow, bull, cattle, bovine, beef, vache, bovin, boeuf, taureau, Kuh, Rind, Vieh, koe, rund, vee, stier." Then, simply by enclosing the search word between curly brackets (cow), you can find all the pertinent text, whatever the language! Just prepare the

synonym file once, add to it as you go along, and Sonar Pro will do the rest.

The new features are nice, but less exciting, like the Comments window, where you can add Post-It comments to the text you're searching. Later on, whenever you are at that page, you can view, print, or save these comments. Still, very useful.

There's no free lunch, though. Sonar Pro still requires setting up, and files must be indexed. These files take up a significant amount of disk space (count that your



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folder size will double when fully set up), and must be reprocessed when you modify your files. The setup process takes a fair amount of time, but does run as a background task under MultiFinder.

So, where does Sonar Pro fit into the HyperWorld? Despite the fact that the word "hypertext" is mentioned only once or twice in Sonar Pro's documentation, I think that it is one of the most powerful hypertext tools available on the market. Why?

- *Speed.* Your Word Nerd's rule of

obvious "thumb" to keep your place when you want to go off on a tangent.

And while the problem is not unique to ArchiText, it requires thousands of dollars' worth of expensive Apple equipment to read a document, without offering a clear-cut advantage over old-fashioned printed linear text.

ArchiText 2.0 requires MacPlus (or above), System 5.0.

— John Seifarth

BrainPower Inc., 30497 Canwood Street, 201, Agoura Hills, CA 91301, USA. Tel.: +1 (818) 707-1712. Price: US \$ 395.



QUIETLY, WITH NO FANFARE OR HYPE, VIRGINIA SYSTEMS HAS REWRITTEN AN ALREADY POWERFUL PROGRAM INTO AN ELEGANT, COMPACT, TRULY USEFUL TOOL FOR WORDWORKERS, THE LIKES OF WHICH I'VE NEVER SEEN BEFORE ON A MICRO.

computer patience: willingness to do a given task with a computer is inversely proportional to the amount of time greater than one minute it takes. Starting Sonar Pro from scratch (assuming the files are already set up) searching, and seeing the results clocks in under the one minute limit.

• *Simplicity:* If you've used the "Search" command of any wordprocessor, you can use Sonar Pro. A scenario: in a normal office or institutional setting, someone does the dirty work of setting up the files. It's not hard, but it must be done. Count on being able to fully index about 20 Mb overnight.

Once that's done, anyone else can find anything in those files in just a few seconds, by double-clicking the Sonar icon, selecting the folder to search from a standard Mac dialog box, typing the search word or words, and pressing return.

Once found, the information can be copied or used with no additional effort. The program is readily used over a network, no great deal of training is required,

and specific customization for your needs is as easy as defining the synonyms you use.

• *HyperPower:* Even relatively complex searches (find "cow" or "sheep" but not "pig") are accessible to neophytes: they simply fill in a dialog box and click "search." Relational searches are a bit more difficult, but you're using the computer to do the hard work of finding the links. You don't have to pre-structure the data, or explicitly link it together, you just supply a "link file" of terms where you want to find relationships, and tell Sonar how many generations deep to search.

Handy tools like the "Associated words" list are very helpful in finding the directions you should look for more information. Sonar Pro also includes the one thing no hypertext system should be without: a placemaker. Choose "Suspend" from the menu, go off on a hypertangent, and see what you find. At any point, you can resume from where you were. How could you use a dictionary without a helping thumb? So, you can read text and then jump to

anything that interests you, cutting across all intervening document structures, and come back to your starting point. Isn't that real hypertext? I think Virginia Systems has developed one of the most widely useful wordworking tools since the spell-checker.

NB: Virginia Systems markets both Sonar and Sonar Professional. The Professional version is much faster, more expensive, and offers the following features: suspension, predefined search phrases, synonyms, associated words, comments, graphics, and relational searching. Many of the features in Sonar Pro 3.0 can now be found in Sonar, while new features have been added to Sonar Pro.

Hardware requirements: MacPlus (or higher) and a harddisk. Price: US\$795 (with money-back guarantee).

— John Seifarth

Virginia Systems Software Services Inc.,
5509 West Bay Ct., Midlothian, VA 23112,
USA. Tel: +1 (804) 739-3200

STYLEWRITER: A DOWNRIGHT RESPECTABLE STYLECHECKER

Picture an editorial office. No hustle and bustle. Everybody is having a cuppa and a good, quiet read. Also, the chief is missing: Lou Grant has been made redundant. If all this sounds idyllic, you should contemplate purchasing StyleWriter.

Why? Because StyleWriter is all about reading, despite its name. Odd though it may sound, StyleWriter's manual is a ripping yarn about stuff that normally makes your eyelids rapidly droop: English grammar, style and usage.

The manual is loaded with info that may have always eluded you, but never eluded old Lou, since your texts were always splodged with red ink when he was done with them. However, devote some time to the arcane ins and outs of English, explained in a clear and concise manner by StyleWriter's godpersons ("godfathers" is Sexist Writing) Nick Wright and Rose-

mary Tilley, and you can stand up to the nibbled, vitriolic pen of any gungho editor.

But what about the software? Well, it won't come as a surprise to you that there are no idylls in wordworkerland. No good, quiet reads ... no time ... missed deadlines ...

Well, StyleWriter is no help here, because you can't do any superfast online editing on your PC. After StyleWriter has checked your text, you have to print it, and then scribble down all the suggested corrections on old-fashioned wood pulp media as you trundle along through the text onscreen. Writer's cramp will be in the making if manual editing is your only editing tool while ploughing through a 600-page manual.

Of course, you can print the stuff to a file, or fiddle around with a second concurrent copy in SideKick and the like. However, this is no good either, because in the first case, you have to keep scrolling towards the end of the file where all the comments are placed and then scroll back to the positions where you want to correct your clangers. In the second case, you might end up with some funny results - none of them all too pleasant if you're caught unawares.

However, despite this major drawback, StyleWriter is very snazzy. The program works with WordStar, MultiMate, Microsoft Word, and ASCII files. Text is analyzed in terms of long sentences (longer than 40 words), passive verbs, and 26 categories ranging from "Complex Words" to "Sexist Writing." Apparently, some 9,500 style and usage faults went into these categories, and I must admit that I was duly impressed on this count.

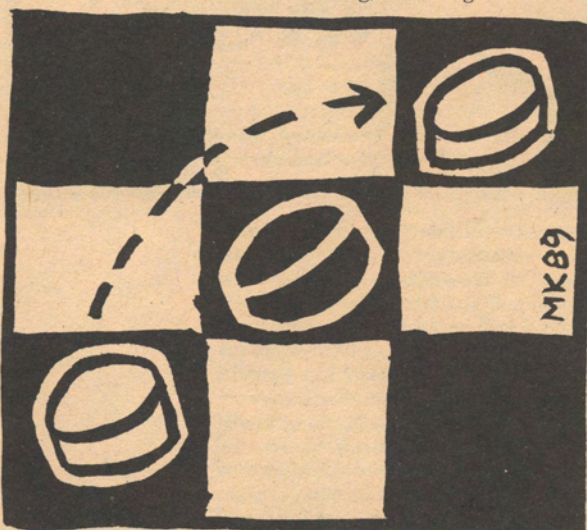
The software itself is also quite dinkum,

completely menu-driven, and with extensive online help, elucidating some of the subtler points of British.

I'll wait for StyleWriter's next release, with an online editing function, but then I'm pressed for time. But if you're in less of a hurry, this version will offer you a patient, penitential knuckle rap for emitting flawed or dubious English.

— Winfrid de Munck

Editor Software Pty. Ltd., The Old Malt-house, Paradise Street, Oxford OX1 1LD,
UK. Tel: +44 (454) 318567. Price: UK£ 195 (US \$ 395).



MAX KISMAN

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GET BISCRIPITUAL WITH WINKIT ARABE

By Mounira Khemir

As a researcher and writer handling material from and communicating with both the North African and Middle Eastern world, I need writing tools that are not just multilingual (e.g., having an on-screen spellchecker for English or French) but, above all, *biscriptual*.

I want to be able to write in both Roman and Arabic scripts in the same document, not just for the Arabic language, but also to represent Ottoman Turkish (Turkish predating Atatürk's romanization of the written language), as well as the odd Farsi word. I want to be able to do this easily on a Mac, without wearing down my fingernails typing exotic key combinations. And I'd like legible print-outs.

WinSoft's WinKit Arabe pretty much suits my needs.

LET'S GET CURSIVE

Although the task of coding Arabic for the computer has been thoroughly mastered, most users working in Arabic need to switch easily between Arabic and European alphabets, which are constructed on very different principles.

Arabic script is essentially cursive—each letter is linked to the next in a continuous flow, which makes typewriting in the language such a long, clumsy business. Moreover, the 29 individual letters of Arabic change shape according to their position (initial, medial or final) in the word. Admittedly, there are no capital letters, but a keyboard still has to handle 87 basic forms.

Computers are beautifully suited to automating the process of choosing the correct form relative to the character before or after. But another feature of Arabic frustrates the mechanization of input: its being written from right to left. The problem is compounded if you want to include left-to-right English or French words in their original alphabet.

WinSoft's WinKit Arabe for the Mac, an Arabic front end to the company's range of multilingual writing software (WinText wordprocessor, WinView outliner and WinFile file manager) allows a biscript writer to produce good-quality documents in the userfriendly Mac environment without having to buy a dedicated machine. It is not yet fitted with a dictionary, so spellchecking in Arabic, or checking morphology against built-in lists, is not yet possible.

MANY SHADES OF ARABIC

The first step in preparing to use WinText was to stick the Arabic letter transparencies included in the kit onto the AZERTY keyboard of my Gallic Mac. The Roman letters remain visible alongside the Arabic. Repeated removal and resticking seem OK. Confusingly, the cursor

control keys (the arrows) and delete key do not get transparencies, so once you're writing you have to remember that deleting left actually deletes right.

Using the shift and option keys along with the letters gives me a standard range of Arabic letters (though it won't handle all Arabic-script languages such as Urdu, Pashto, and Berber). Also the extensions for transliterating foreign words into Arabic (e.g. the letter for "p" modified from the Arabic letter for "b") and numbers.

The keyboard also handles another major feature of written Arabic—the fact that its three short vowels, symbolized graphically by little sloping accents above or below another letter, are not usually included when a word is written, since the meaning can be predicted without them—vwls r rdndt ltrrs, rnt thy?

However, when a child learns to read Arabic, or when you write for less educated readers, texts include these vowel signs. Teachers developing Arabic learning material—a potential market for this package—could gainfully employ these vowel symbols to aid their students. As could desktop publishers running the Arabization programs under way in Frenchified North African countries. And the Koran is always "vocalized" to help recitation.

Once the KitArabe programs (three disks-worth) were loaded on my harddisk, I was able to choose to run WinText under an Arabic version of the Mac operating system, offering Arabic menus and dialog boxes. This allows you to enter text from right to left in Arabic script, using all the usual editing functions.

Four Arabic fonts are available on a given line (though traditional *nastaliq* or *riq'ah* scripts are not supported). While working onscreen, I found the extended option in combination with the so-called "El Kahira" font proved the most readable and easy on the eyes.

You switch to the Roman alphabet by pressing a simple key combination, though input is still right to left. Unexpectedly, you also get Roman input using the Ctrl key with the Arabic keyboard active. To return to the original Roman interface, I have to exit and reboot the system completely.

YOUR OPTIONS

The Apple Control Panel lets you configure the Arabic Interface System according to your needs. You can choose either left/right or right/left for entering data in dialog boxes, as in supplying a file name. You can select either extended ASCII code fonts or Arabic fonts (but not both) in a document. And you can calculate the date in Islamic lunar months, or according to the Gregorian calendar.

You can also select two other options—ligatures and *kashida*—which are peculiar to Arabic writing, and which, in principle, constitute one of the advantages of

this package.

Apart from automatically choosing the right letter shape for its position in the word, WinKit offers the esthetically pleasing option of automatic ligatures. For some two and three letter combinations, Arabic script has a special form. However, WinKit seems only to generate one or two out of a quite large range of these potential ligature combinations.

Since Arabic writing does not accept the hyphenation of words, WinKit includes a *kashida* utility, which extends the horizontal part of certain Arabic letters so as to generate left justification without stretching word spaces. I couldn't get it to work on just a single word, producing a distended shape stretching across the page, but for standard text, the option works well.

The final print quality depends, of course, on your printer. You'll want to keep

A LITTLE MORE GUIDANCE IN THE SKIMPY FIVE-PAGE SUPPLEMENTARY MANUAL FOR ARABIC WOULD MAKE WINSOFT'S HANDY PACKAGE A REAL "WIN"-NER



track of font sizes of Roman script, as—absurdly—it is produced at twice the size of the equivalent Arabic script.

A little more guidance in the skimpy five-page supplementary manual for Arabic would make WinSoft's handy package a real "win"-ner, especially when the user documentation for the Roman-alphabet WinText is so good.

Mounira Khemir researches iconography in Middle Eastern and North African cultures.

WinSoft, 34 boulevard de l'Esplanade, 38000 Grenoble, France. Tel: +33 76 87 56 01. Price: FF 1652 (US \$ 280).



MACPROOF FOR FRANCOPHONES



MAX KISMAN

European MacProof (French Edition) is an elementary proofreader for the Macintosh, especially designed for Francophone writers who use English as a second language. It was released along with its counterpart for German speakers earlier this year.

The product's added protein comes in its "interference database," which is geared to seek out typical writing errors arising from French interference in English composition.

Just like its monoglot parent program (see *Electric Word* #15 for a review),

European MacProof is designed to be called up to run customizable checks on documents. (Note: if you want UK rather than US output, you'll have to do a lot of inputting to the resident lexica.)

Since the interface, the accompanying manual, and the stylechecking messages are all in English, the foreign learner gets added value in having to read through everything in his target language. Some users, however, might not see this as a bonus.

On the whole, the program is easy to install, extremely straightforward to use and—depending on your needs—the info in the suggestions on synonyms to use or style features to avoid can form a useful addition to your writer's workbench.

As the screen messages frankly admit, MacProof only runs checks of your input against a bunch of lists—no linguistic smarts here. So as second-language proofware, it can only handle a number of straight lexical phenomena: "false friends" (*eventually* is not the same as *éventuellement*), plurality ("No, we ain't got no informations, bud"), and irregular verb morphology. It will pick up capitalization differences between French and English for terms such as the months, but interestingly won't flag an unacceptable adjective such as "french" for "French."

Every user will eventually bump up against the limits of its 60 Kb wordspeller list—for example *Françoise* was flagged and offered a male chauvinist *François* in exchange—and the relatively common *Odile* didn't even get a look in. But these lacunae are only significant in so far as they take up precious proofing time—they can always be added to your stock.

SOFTCOPY ROUNDUP

GOFER GOES FURTHER

Microlytics' brilliant Desk Accessory Gofer goes like a bat out of hell through your hard-disk looking for specific strings of text, no matter what format they're in. Version 2.0 now allows you to copy or "export" text located in files found, onto a clipboard for further use.

Considerably better than its forbear for DOS machines. No Mac should be without it. Price: US\$79.95.

Microlytics, Two Tobey Village Office Park, Pittsford, NY 14534, USA. Tel: +1 (716) 248-9620

ONLINE WITH MIRROR III

Owing to its command-line origins, this fully-fledged PC-compatible telecom package is a little harder to get up and running with than Procomm Plus, for example. Nevertheless, its MNP link-level error correction and background operation mode (just don't get too ambitious in the foreground) all point to the future.

And most interesting for beleaguered users of cludgy videotex software, SoftKlone offer an optional Prestel/Minitel module.

Price: \$129.95.

SoftKlone, 327 Office Drive, Suite 100, Tallahassee, FL 32301, USA. Tel: +1 (904) 878-8564

TINKERER'S DELIGHT

With those long winter evenings approaching, what could be more fun than squeezing just a little more use from those meager 640 kilobytes of standard RAM in your PC/compatible? PC-Kwik Powerpak includes a disk-caching program that can share some of that precious standard RAM with a RAM disk, the latter dynamically allocating space as it needs it.

The package also includes some other software gadgets to put an octane or so into your tired clone, like a keyboard, screen accelerators, and a printer spooler, each with enough command line parameters to last until spring comes. Price: \$129.95.

Multisoft Corp., 15100 SW Koll Pkwy., Suite L, Beaverton, OR 97006, USA. Tel: +1 (503) 644-5644

CLICKART'S SCRAPBOOK +

Scrapbook + is a very Mac-like program for Microsoft Windows running on PCs. It lets you

store various kinds of graphic images (including EPS files), view them, and paste them into other Windows applications.

Images can be read from files, the Windows clipboard, or by capturing the contents of windows or the screen. A hotkey (Alt-PrtScr) is available for this purpose. This also works for applications running in full-screen text mode.

Scrapbook + is supplied with two sample collections of T/Maker's extensive range of clip art for Windows, the Mac and other applications.

Price: US\$ 129.95.

T/Maker, 1973

Landings Drive, Mountain View, CA 94043, USA. Tel: +1 (415) 962-0195

KEEP THOSE FILES IN LINE

As a given program reads and writes information to files on your harddisk, these files can get spread around in bits and pieces. A disk optimizer gathers all these loose bits together and places them in contiguous order, increasing the speed at which a program can read in a file.

FastTrax differs from other PC-compatible disk optimizing programs in that it offers a high level of configuration, allowing you, for example, to prioritize certain files

on your harddisk. FastTrax will reorganize a file-laden 20 Mb harddisk in about half an hour.

While programs like this aren't likely to change anyone's life, they are simple utilities that slightly technically-minded users can use to improve the performance of their PCs with a modest investment.

Recommended to anyone with a harddisk in their PC.

Price: \$79.95.

Bridgeway Publishing Corp., 2165 East Francisco Blvd., Ste. 1A, San Rafael, CA 94901, USA. Tel: +1 (415) 485 0948

— Colin Brace and Charles Hugo



Typical Franglish collocational hiccups such as verb complementation ("I suggest you to go") or functional order ("I like very much your back propagation algorithm") will no doubt have to await further research by the team at the University of Neuchâtel in Switzerland who provided the "interference" data.

As to eventual users, the slow pace of MacProof's onscreen searching and replacing (at least on my SE) makes it more suitable for teachers of English than what Parisian job agencies call "secrétaires bilingues"—overworked young persons who have to cobble together letters or brief reports in English for their linguistically less competent bosses.

Yet in France, certainly the largest potential Francophone market for this product, Macs hardly exist in the classroom. So it would be article-scribbling researchers—lots of labs use Macs—along with certain translators, who could benefit most from MacProof's careful and sensible glance over the shoulder at what they've written.

Onscreen messages and a manual in their first language would no doubt add appeal to this first generation editing pack.

—Louis Daure

Lexpertise Linguistic Software SA, Château de Vaumarcus, 2028 Vaumarcus, Switzerland. Price: SF 495 (US \$305).

[See the next issue of Electric Word #17 for a review of this product's sister program: European MacProof (German Version).]

RECALL PLUS: FULL TEXT RETRIEVAL

Every once in a while you come across one of those funny English words that make you wonder. Words that sound like magic. "Hoi polloi" was such a word for me. So was "egregious." And let's not forget about "gregarious." These words, just to name a few, all have one thing in common: as soon as you've consulted a dictionary, the magic is gone.

I can now add Recall Plus to that list, because that "Full Text Retrieval System" made me wonder. I wasn't so concerned with Recall. After all, Recall Plus is a prolific recaller of reviews, diaries, essays, quotations, limericks, witticisms, poems, and any other texts you can't possibly reel off the top of your head because your name is not Oscar Wilde. It'll do all that for you, as long as you plonk all the stuff into a library.

You get plenty of assistance. Recall Plus swarms with menus and tons of online help to get you knocking your prolix database into shape, allowing you to dispense with all the hassle a regular database lumbers you with.

Recall Plus is a real "humdinger" as well (that was another one of those words). It can handle 65,000 documents per library, two gigabytes of text per library, 65,000 words and chapters per library, and an unlimited number of libraries per system.

So what is the wonder of Recall Plus? The Plus? I can't possibly see what's *plus* about it. The program is not extraordinary, because other programs exist offering the same bag of tricks. "Plus," however, implies something extra, a quality, or outstanding features. Features like mouse support to zip through the menus, or a decent tutorial, so you don't have to plough through the manual.

Because of no such *plussy* features like a tutorial, I had to read the manual, which teems with typing errors, spelling mistakes, and punctuation errors. Since when does Elizabeth II R approve of Newspell like "diferent," "instal," and "occurences"? Since when does Microsoft's Bill Gates call file extensions "suffices"? Why can't a supposedly advanced software company like Insoft Ltd. check the Recall Plus Full Text Retrieval System manual with its outlandish electronic utilities like spelling checkers, style checkers, terminology databases, and the like?

It makes me wonder and reminds me of the *passé* charm of an aged and battered Morris Minor which I recently saw spluttering through heavy traffic. The rear window was adorned with the slogan: "Buy British. Well, somebody had to."

—Winfrid de Munck

Insoft Ltd., 35 King St., Bristol, Avon BS1 4DZ, UK. Tel: +44 (272) 268 893. Price: UK £495 (US\$800).

STATE-OF-THE-ART DATA SNEAKING: FASTHAND FOLIO VIEWS

Any attempts to dismiss Folio Views 1.3 "merely" as a text database are immediately reprimanded on the first page of the manual. However, if you insist on using it as a text database, you won't be disappointed. On the other hand, if you thought you were buying a personal information manager, wordprocessor, or a DOS manager, you won't be disappointed either.

Folio Views is for designing large, large volumes of text, and it does so fast, effortlessly, and in a user-friendly way. It keeps all your text in a so-called Infobase, which you can query to your heart's content, using a whole range of operators.

Since your data is most useful when it is properly structured, the important criteria for judging this kind of program are:

- How do you get your data in?
 - How can you structure your data once it's in?
 - How do you get your data out?
- Getting data *in* is where most programs

stretch the user's patience to the limit. Not so with Folio Views. Importing, indexing, and compressing a 2.7-Mb ASCII file took a little over 10 minutes on an AT-class machine.

The built-in wordprocessor more than suffices for creating text on the fly. It features some nice formatting functions and has an interface that borrows familiar keyboard commands from WordStar and WordPerfect.

The program can directly import ASCII files, and the manual provides ample help on how to import files from most commonly used wordprocessors. The company even thoughtfully supplies macros for converting WordPerfect files into ASCII format, ready for import. Moreover, a set of utilities makes it easy to prepare files for import by allowing you to perform tasks like global search-and-replace on text strings.

What makes the program stand out from its competitors is its state-of-the-art

look-and-feel, an impression confirmed by a closer look at some of its moving parts. The indexing and compression algorithms are really whiz-bang, providing virtually instantaneous response to queries and taking just seconds to re-index any changes to the database. The size of the file containing the infobase and the index on disk is often smaller than the original ASCII file.

The manual is thoughtfully structured and attractively designed. The user interface is as natural as they come. Watch this program, because publishing companies have promised to release huge text databases in Folio format and include a runtime version of the program called Folio PreVIEW.

No bugs and recommended.

—Marcel Brugmans

Folio Corp., 2155 North Freedom Boulevard, Suite 200, Provo, UT 84604, USA. Tel: +1 (801) 375-3700. Price: US \$495.



'ZINES SEEN

It's the turn of the September **Personal Computer World (UK)** to raise once again the weighty Which Wordprocessor for Your Mac issue. The author asks whether Microsoft Word 4.0 and Ashton-Tate's FullWrite 1.1 are overly complex. In an avalanche of high-fiber verbiage, he contends that the user interface of most high-end wordprocessors "collapses under the weight of Shift-Alt-Ctrl key combinations," a fate that these two noble products apparently avoid, "leaving the competition far behind."

If you're planning to purchase one of the newer Macs, like the CX, then you'll have quite a range of

monitors to choose from. Cheaper than color monitors – and by nature sharper – but more expensive than a true monochrome, a grey-scale monitor is a good compromise. The October **MacUser (US)** reviews 11 of these monitors, from the 12" Apple offering, to the big 21" double-page monsters offered by three manufacturers.

In combination with eight-bit video cards, these monitors are capable of displaying a handsome 256 scales of grey. Summing up the offerings, the authors give highest marks to the PCPC Shadowgraph (19"). Of the 21" heavyweights, E-Machine's Big Picture Z21 1Q "has it all."

Finally got your

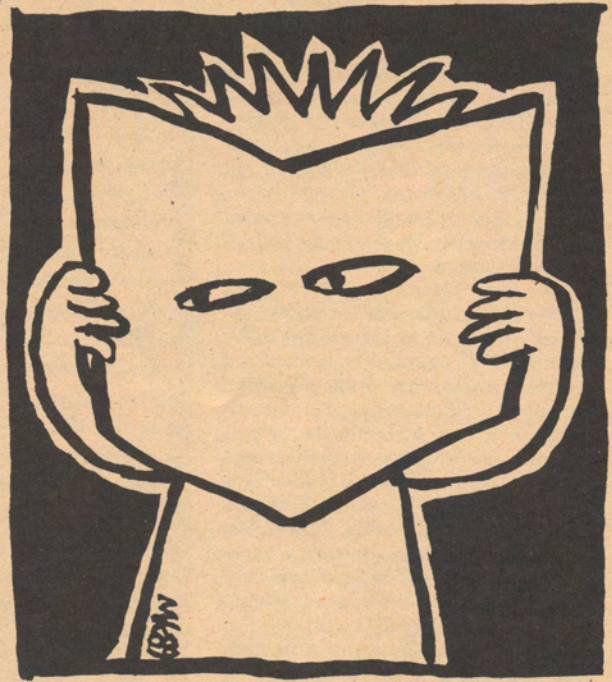
DOS Local Area Network up and running? Wondering now what to do with it? The September 26 **PC Magazine (US)** mounts a broad-ranging survey of LAN software, including a surprisingly large number of electronic mail systems.

Installation procedures – one of the PC/compatible owner's biggest headaches – figure prominently. Top-rated DaVinci eMail offers "the most hassle-free installation" of all the e-mail systems. Plus, its TSR mode is a "godsend" to the heavy e-mailer.

Is your trusty old dot matrix or daisy-wheel printer beginning to sound more and more like a family of woodpeckers? Tired of Elite or Pica, or the other "typewriter" fonts? **Personal Computing (US)** surveys the current offerings of Hewlett-Packard-compatible laserprinters in the September issue. These aren't PostScript printers capable of spiffy font manipulation and eye-catching graphics, but they are fast, quiet, and reasonably priced.

Printer benchmarks ("six-page PageMaker...") separate the men from the boys – or in this case, the Brother from the others. In a burst of florid prose, the reviewer concludes by pronouncing the Brother HL-8E "versatile in desktop publishing environments."

On the other hand, a 24-pin dot matrix may take care of all your needs. The October



MAX KISMAN

issue of **PC World (US)** lines up seven "under-\$1000" 24-pin dot matrix printers, evaluating "output quality, speed, and paper handling" in that order. The Okidata Microline (ML) 390 gets the thumbs up, with its "excellent" output of both text and graphics.

Plagued by empty Windows? The September **Personal Computing (US)** tallies up the available Windows and Presentation Manager Applications. The author claims that these two Graphic User Interfaces are "reaching critical mass" and lists the applications available. Don't hold your breath. Beyond a few Macintosh graphics ports, you won't get WordPerfect, Word, or other heavy-weight wp programs (yet). Why bother?

Shopping for a PC/compatible is turning into a bizarre experience, with some computer journalists

proclaiming that opting for anything less than a 386 is the height of foolishness. Still, a zippy 286-based AT clone is nothing to sneer at, let alone a 10 MHz XT. If you're not up to a (still) pricey 386, you can do nearly everything except perform special multi-tasking calisthenics on an AT.

PC Magazine (US) takes a look at a lineup of "affordable 12-MHz 286 PCs." Rather reluctantly, the author of the piece acquiesces that a "12-MHz 286 runs WordPerfect, OS/2, and PageMaker better than a stone pad and a No. 2 pencil." Wading past the benchmarks, we are astonished to discover that the Editor's Choice was not a given machine but the advice to buy a 386SX-based computer (!).

The September **PC World (US)** barks up the same tree with "286 or 386SX? Eight Hot Boxes Answer the

32-bit Question." This author concludes his review saying: "Given the relatively low price of 80386XS-based systems, it's silly to buy a system that rules out 80386-specific software." Not that much of that software actually exists, mind you.

Always been an armchair (or pillowcase) programmer? The October **PC/Computing (US)** puts you in the driver's seat with Three Packages that Make You an Instant Programmer. Layout, Clarion and Cause are the three, each offering "code-free programming" in various ways, but all with a strong dose of graphics. The author takes pains not to raise expectations too high, commenting: "No one is likely to use one of these products to create a competitor to WordPerfect." Still, they look like fun.

– Colin Brace

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WHEN I HEAR THE WORD "CULTURE," I REACH FOR MY FUN

Make no mistake about it. High culture as a vehicle for self-development has soured into mere *kulchur*, the intellectual slurry that is entertainment. Such is the complaint of Alain Fienkelkraut, freewheeling but morally committed French intellectual and currently the toast of all those Parisians for whom Mickey Mouse is getting a bit too close for comfort.

"*La Défaite de la Pensée*," Alain Fienkelkraut (Gallimard, Paris, 1989) Price: FF70 (US\$11). Translated into English as "*The Undoing of Thought*" (Claridge Press, London)

By Wendy-Jo Nascler

BLAME IT ON THE BOOGIE

According to Fienkelkraut, our world is a "post-anthropological" one, in which Western culture, resting on real thought, has been debased through a soggy-minded cultural relativism that ranks Senegalese folk dancers, Parisian fashion designers and pop-music videoclip producers alongside Shakespeare, Flaubert, Goethe and the rest of the heavy mob as serious objects of cultural worth.

Our world has become juvenilized, and with it what passes for thinking about the world. "The realm of higher thought is replaced by that of vibration and dance."

If this lamentation for our cultural values sounds familiar, it is because US writers like Neil Postman and Allan Bloom – and to a more refined degree George Steiner in Europe – have already lambasted educational and cultural trends they regard as having depreciated the critical spirit of discernment that Western culture traditionally embodied.

Fienkelkraut's territory in this book is resolutely French, and he spends most of his time tracing the genealogy in French thought of the mutation of the word "culture," from its eighteenth century associations with an enlightened awareness of *Bildung* – or using thought to better oneself – to twentieth century ethno-relativism, in which culture simply means what you do when you're not working, "from the art of knitting to the chewing of betel nuts."

The main culprits in thought's "undoing" – note the weird biblical tone that translator Dennis O'Keeffe chose for the English translation of the title – are the likes of the German thinker Herder, with his Romantic idea of the *Volksgeist* – the village green as the apotheosis of national culture.

This view in turn prepared the way for the claims for cultural validity made by newly-independent third world countries today. "My culture right or wrong." For Fienkelkraut, such is the populist result of this original *trahison des clercs*. The consequence is that we spend more time "opening ourselves to the reason of oth-

ers than opening others to reason." No prizes for guessing which way Fienkelkraut would like to do his opening.

KISS YOUR AURA GOODBYE

This is powerful stuff, and the book is packed with interesting insights into the changes our attitudes to cultural values have undergone, both "officially" in such bodies as UNESCO as well as in our daily habits of thought.

Fienkelkraut is no man's slave, and however you interpret the word "culture," this book provides a short sharp dose of intellectual liver salts to whoever is prepared to plow his way through the underbrush of French references, which range from details of the Dreyfus affair to low-end patter about TV star Yves Mourossi.

Nevertheless, I found his radical shifting from analyzing past philosophical or political texts as sources of what people "thought" (which people? great writers?) to his scattered allusions to French rock musicians as examples of *kulchur* today to be too facile.

Certainly, Fienkelkraut is more concerned with alerting educators and intellectuals to the depreciation of our cultural stock than with trying to write real history. But by slipping rapidly from age-old trends to temporary fashions and back, he blurs some of the very criteria that thought needs to preserve its lucidity.

Part of the problem of our change in values – and a part that Fienkelkraut ignores – is that there is a technology-driven dynamic at work whereby the exponential growth over the past 150 years in the mechanical and now electronic reproduction of text, sound, and image, has fuelled the motor for today's multicultural "thinking."

You could almost argue that in the past, the significance of culture as philosophical self-help was in direct proportion to its availability, and that once the means existed to distribute cultural knowledge of all sorts to the masses, its "aura" inevitably declined.

Behind much of Fienkelkraut's lamentation for the cultural world we have lost is a fairly constant image of the transmission of learning as an essentially oral confrontation between mentor and pupil, guru and disciple, gathered together around semi-sacred texts for a mutual invocation of the logos.

WALKMANSHIP

Yet since arriving in McLuhan's global

electronic village, we no longer need a hierarchical structure and fixed geographical location for our "acculturation." Everyone is his own guide through the labyrinth. The very scale of material available today requires us to doubt the particular significance of any one source of wisdom, and the fact that the world has become "infantile" is as much an effect of long-term demographic forces as the result of the chauvinism of local cultures.

Despite the inescapable moral force of his arguments about the conditions necessary for human self-discovery, Fienkelkraut's black-and-white snapshots of the rich word-based life of the



Antoine Le Grand.

mind in the past contrasted with today's rock-music supermarket of postmodern "barbarism" fail to account for the way we adapt to the moving picture of change.

We are only just beginning to learn how to use the riches of the technological revolution to handle our leisure time and develop ourselves in deeper ways. And skateboarding with a walkman is as trivial an example of the "zombieism" of modern culture as a shepherd boy trilling on a flute represents the cultural vacuity of the past.

Today, more people read more good books in a critical spirit and listen to good music than ever before. Certainly, the electronic control of our media allows us

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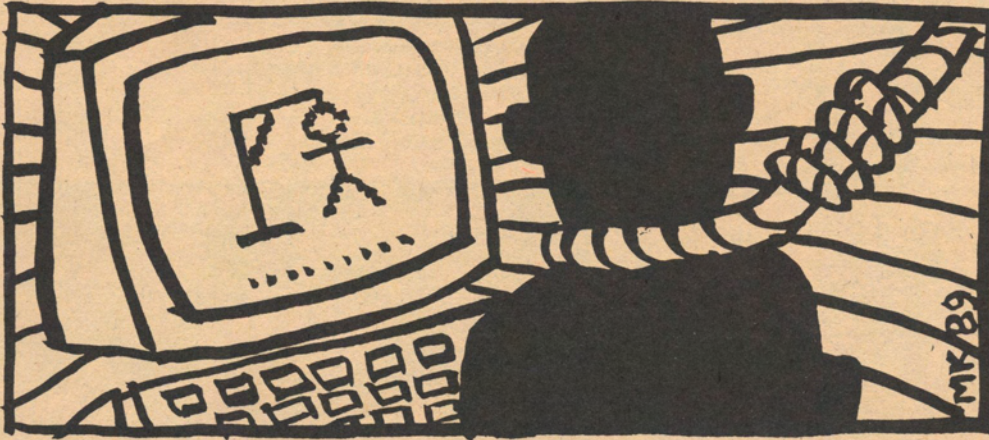


to zap far more rapidly among different elements of our cultural world than did the mechanical pace of the past. But no one has proved that rapid access is any more fatal for the life of the mind than was the extension of reading time that the arrival of the electric light provided a century ago.

Yes, our relationship with the complex notion of "memory" is changing under the influence of machinery. Two and half millennia ago, Plato was complaining about the nefarious influence of handwriting on the memory. Yet it was precisely the extension of a technology such as writing that allowed the very idea of a

universal culture to be promulgated in the first place.

In the last analysis, Fienkelkraut seems to opt for an elitist vision of culture. Alas, the more people are educated, the more it seems the moral authority of his Enlightenment vision of "thought" gets trashed.



**IN 1984,
APPROPRIATELY
ENOUGH, TWO-
THIRDS OF ALL
AMERICAN VDU
OPERATORS WERE
BEING MONI-
TORED.**

SLAVES OF NEW WORK

"The Electronic Sweatshop: How Computers are Transforming the Office of the Future into the Factory of the Past," by Barbara Garson (Simon & Schuster, 1989). Price: \$17.95.

By Jane Szita

There are computer dreams and computer nightmares. The Utopian dream of the computer as liberator – no more tedious tasks and increased leisure time – is counterbalanced by the nightmare of technological repression enforced with the help of the machine's Big Brother capabilities.

We're all familiar with these contradictory myths. And most of us foresee a future containing elements of both dream and nightmare – their exact proportions depending on our own personal experience and prejudices.

This book is about the nightmare. Garson's account of how computers are already being used throughout the US economy to watch, control, denigrate, and "replace" workers – not just the low-skilled but professionals too – may well swing a few readers towards the Big Brother pole.

Her findings are staggering: from MacDonald's to Wall Street, from the social worker to the admiral, computer automation is being used as an opportunity – or excuse – to downgrade jobs, eroding work satisfaction and job security, and endangering life, liberty, and the sacred pursuit of happiness into the bargain.

This isn't a technical book. It doesn't contain much by way of statistics either – at least, not well-documented ones. Instead, it is largely a series of first-hand, behind-the-scenes descriptions, based on interviews with people whose working

lives have been radically altered by the automation of their jobs.

MAC THE KNIFE

Most of this book's case studies are recognizably individuals, likeable or unlikable, rebellious or resigned.

They include a successful but frustrated MacDonald's manager kept sane by dreams of running a French restaurant, a qualified social worker turned from an autonomous professional into a computer clerk, and an admiral who spent the Vietnam war resenting "being told what to do by people who never fired a shot."

The first two are high on pathos, the third more of a horror story – wars, it appears, can now be controlled, down to the minutest detail, from armchairs in Washington.

The story begins with a crude but effective example of automation: the MacDonald's computerized kitchen, where it takes a mere 90 seconds to prepare and serve a burger. This is made possible by the electronic beeps and buzzers that effectively dictate the worker's every movement and eliminate any need for individual judgement. "You're a complete robot," says one ex-employee. Consequently, you're also underpaid, undervalued, overworked, and totally replaceable.

Fast food may seem an obvious candidate for robotification. But in fields as varied as social work, banking and middle management, office automation also results in a perverse remodelling of the workforce.

Routine and creative elements are ruthlessly separated, so that dull routines can be performed by the least skilled and lowest paid workers possible – preferably temps. Creative tasks then become

the province of a shrinking group of "exception workers" – a fortunate few whose jobs have not (yet) been downgraded.

TRUST IS GOOD, BUT CONTROL IS BETTER

Cost-cutting – of course – is a universal economic driving force, the most effective manifestation of which mentioned here is the creation of overseas electronic sweatshops. Texan data can now be processed in China, with huge savings in wages.

However, Garson is keen to insist that cost-cutting is not the only incentive to automate. She notes that US developers have persistently concentrated on systems that centralize control, even where more "democratic" systems are cheaper.

For instance, US businesses tend to avoid the Japanese practice of using simpler technologies that leave the individual worker more autonomy. (Similarly, while the Japanese enshrine the idea of one company for life, the US is gradually turning its labor force into temps.) In all this, Garson sees an "irrational" need for control, and a "profound" distrust of human beings.

What horrifies Garson most about this Orwellian – even Dickensian – scenario is the extent of electronic surveillance at work. Linked to high rates of stress, illness and absenteeism, employee-monitoring is restricted in several European countries. In the US, however, it is widespread.

In 1984, appropriately enough, two-thirds of all American VDU operators were being monitored. Systems that monitor the worker – by timing and counting keystrokes – are now cheaper to buy than ones that don't.

The thesis of Garson's book is essentially that the computer is being misused by a managerial class that has its attitudes firmly rooted in the nineteenth century. Time and motion studies are the basis for computer automation, as they were for the development of the assembly line.

The primary objective of industry's modern Gradgrinds seems to be to move all decision-making, however trivial, as far up the company – or state – hierarchy as possible. The result: a tiny group of managers who are more powerful and more insulated from human experience than Orwell would ever have feared possible.

In other words, technology is moving too fast for society's rusty old machinery to keep up. We need new concepts of work, new legislation, and new management strategies – and we need them fast. Otherwise, Garson fears, we could all become slaves of new work.



THE JALPAC KISS OF LIFE

"A Japanese View of Machine Translation in the Light of Considerations and Recommendations Reported by ALPAC, USA," published by JEIDA (the Japanese Electronics Industry Development Association), Kikai Shinko Kaikan 3-5-8 Shiba Koen, Minato-ku, Tokyo 105, Japan. Tel: +81 (3) 433 1941. Fax: +81 (3) 433 6350

By Andrew Joscelyne

Popularly known as the "JALPAC Report," (see LT#15 for a preview), this 200-page industry guide contains quite a laborious point-by-point comparison between the decidedly unspacious ALPAC Report (America, 1966) and the economic and above all technological realities of Japan in the 1980s.

This decade wins hands down. An appendix in the current report lists the enormous number of changes that have occurred in tooling, human translator training, and industrial perspectives over the past quarter of a century.

The actual report soaks up a mere 20 pages, but the rest is dedicated to a wide range of appendices containing comments, statistics on the translation busi-

ness, comparative examples of two-way Jap.-Eng. MT output from various rigs, and more or less complete lists of Japanese and "overseas" MT systems.

Although you won't get company addresses or fax numbers, this is as good a brief infosource as you'll find on either research or commercial MT. (By the way, does anyone know anything about Carozelia Japan or Catena Resource MT systems, please?)

Far more interesting, however, than the rather obvious macro-differences between the natural language processing environments of 1966 and 1989 is the vivid glimpse this report offers into the organization and economics of the ¥ 800-bn-a-year Japanese translation market, just as MT stands poised to transform it.

Using a JEIDA market survey polling some 1,800 users or providers of translation, the JALPAC Report offers a useful overview about what's going on and what people think about it.

Mind you, with only 6.4% returns on questionnaires, the general picture inevitably contains a lot of extrapolation, which unfortunately vitiates any global appreciation of the situation. However, the

detailed results are so intriguing as to occasionally suggest typing errors.

For example, the ratio of capable translators among graduates of translation schools is given by one translation company as two for every million! A breakdown of languages translated obviously gives overwhelming precedence to Japanese and English, but an unexplained 7,000 pages a year are given for translation between English and - English. If you've seen Japanese "advertising English," perhaps you'll understand why.

The current pre-MT technological environment also offers some surprises for the Western observer. Wordprocessors are apparently used mainly for producing clean copy, since translation fees rise when wps are used. The report refers, however, to "interesting cases" in which translators actually input translation via a wp, by golly!

Japanese operational MT systems are roundly judged as inadequate, and most potential user firms inevitably want high-end rigs demanding little or no revising. On the other hand, translation companies condemn the poor level of technical writing in Japan, which complicates the trans-



HARDCOPY ROUNDUP

"The Longman Register of New Words," by John Ayton (Longman Group, Longman House, Burnt Mill, Harlow, Essex CM20 2JE, UK). ISBN 0-582-03772-7. Price: UK£5.95 (US\$9.60)

As a postcard from the frontier of language advance, the Register aims to present a rounded picture of the ways in which English grew and developed between 1986 to 1988, with citations from over 130 newspapers and magazines (including EW - cited for ergonomics and - flatteringly - for personal organizer).

Some words will turn out to be ephemeral, others more enduring, but all 1,200 entries reflect in some way the concerns of the (British) English-speaking world in the late 80s: wealth (lots of financial

and yuppy slang), computers (bogusware, lans, wans) and disease (Lyme disease, affluenza, yuppy flu).

Pop culture is as vibrant as ever (acid house, psychobilly, speed-metal), as is English's capacity to absorb from other languages, from Punjabi (bhengri) to Japanese (nashi, waribashi, zaitech).

A social document.

"The Way Things Work," by David Macaulay (Houghton Mifflin, Boston, 1989) ISBN 0-395-42857-2. Price: US\$29.95.

A superb overview of the technology that shapes our life and how it works. Macaulay's draftsmanship and humor are so pervasive that it takes a while to realize you're actually reading physics.

Even the least

mechanically-minded person will be able to understand how a zipper zips, how the theories of levers, gears and axles have been applied, why flying works, telecommunications, sound and instruments - in fact more things, theories and connections between them than you ever realized you didn't know about.

Every child should have one - and judging by the reaction in the EW office, every adult too.

"Elsevier's Dictionary of Physical Planning," by Gordon Logie (languages: English, French, Italian, Dutch, German and Swedish; Elsevier, Amsterdam, 1989). ISBN 0-444-70509-0. Price: Dfl 350 (US\$166)

Planning is rap-

idly outgrowing national boundaries. As an expanding discipline, it is in need of an enlarged, enriched and more refined professional vocabulary. In most countries, this evolution is continuing, but in an uncoordinated manner.

Gordon Logie's book is an attempt to check and clean up the national terminologies in European countries. A comprehensive tome for the specialist - although a lightening check showed no references for "bollard" or "ramp."

"Managing Desktop Publishing - How to Manage Files, Styles and People for Maximum Productivity," by Jesse Berst (New Riders Publishing, PO Box 4846-V, Thousand Oaks, CA 91360, USA). ISBN 0-934035-27-X. Price:

US\$9.95).

A paperback collection of tips, common sense and adapted traditional publishing wisdom designed to reduce chaos and confusion among dtp neophytes. Part One covers the devising of an overall strategy, creating and editing text and pictures, and how to merge the two into a final document. Part Two is a reference section, using real-life illustrations of the points from Part One, how to put together a tool kit, and so on.

Anyone producing pages will find it useful, whether you have a Mac, PC, or Unix workstation.

"Panorama de la Traduction Assistée par Ordinateur," published by the Département Systèmes d'Information et de Documentation (Direction des Etudes et Recherches, Elec-

tricité de France, Clamart, France. Tel: +33 (1) 47 65 41 58. Price: FF340 (\$54).

Electricité de France, the national mains supplier, has obviously been looking into the feasibility of using CAT or MT to handle some of its translation needs, and this 70-page overview is the result of its endeavors.

Covering most of the globe, including a couple of Russian systems, and stretching from Systran to BSO's DLT - though bypassing unsophisticated but in-use programs such as PC-Translator - it collects material mostly published elsewhere and boils it down into a schematic form, adding one or two original developer descriptions in an appendix.

An awareness-package aimed at corporate decision-

makers appalled at the rising costs of haemoglobin-driven translation software.

"Electronic Dictionaries and Automata in Computational Linguistics," edited by M. Gross and D. Perrin (Springer-Verlag, New York, 1989). Price: US \$ 15.10

A collection of papers on current French work in building large-scale electronic dictionaries. Data compression techniques, finite automata theory for lexical representation, and the place of phonetic descriptions are mixed in with a study of Romance language pronominalization problems for text generation. By the team who will bring you the French module to EUROTRA.

Strictly for those who get a buzz from estimating entropy by the Lempel-Ziv Method, for example.



lation process, whether machine or human. Another noteworthy criticism concerns the lack of interest on the part of development teams in integrating translators into MT environments.

In spite of all these hiccups, Japan is

clearly streets ahead of where the US was in 1966, above all because it has a powerful vision of the real implications of MT for its own economic development. In the words of this report: "Work is proceeding to establish machine translation technol-

ogy as the basic technology for future high-level information processing. This is visualized in *addition* to the desire to develop a practical MT system." (my italics). Nothing like that to get development subsidies pouring in, is there?

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DRAW ME A BRAIN

"L'Intelligence Artificielle et le Langage,"
Gérard Sabah (two volumes, Editions
Hermès, Paris, 1988 and 1989). Price: FF
240 (US\$39) each

By Andrew Joscelyne

If France is ever to catch up with the US, Japan, and other parts of Europe in the cognitive sciences - warned a recent alarm-bell report to the French ministries of research and education - it will have to set up a full-scale program of research into everything from linguistics to the neural sciences.

More cognitive research tools will have to be introduced, and this will mean localizing theories and ideas from elsewhere, mainly the US, adding value as needed on the way. Published with money from the DIST (French Ministry of Research and Technology), Gérard Sabah's comprehensive work fits neatly into the current French drive to offer basic AI techniques to the homegrown graduate student and engineer market specializing in the field of "linguistic knowledge processing" - that is, getting machines to understand natural languages.

The author of these two densely-packed but nevertheless readable tomes is in charge of the Written Language section of the Man-Machine dialogue research group at the University of Orly-Sud in France, and was awarded an IBM Prize in 1987 for his work on language understanding systems.

And if there were another prize going for clarity of presentation and richness of coverage, then these two volumes would deserve it. The general organization is superb, and each aspect of cognitive behavior treated is dealt with in sufficient detail to allow a critical understanding of how it can be in some measure computerized.

Sabah's perspective is what he calls *"l'informatique linguistique"* - the study of how computing techniques can model the communication process. He is therefore interested in what the various levels of linguistic knowledge (apart from "phonetic" competence, which he sensibly chooses to ignore) contribute to the understanding process - and how in turn these types of knowledge (syntactic, semantic, and pragmatic) can be represented in formal computer applications that model human understanding.

The book's first volume introduces a wide range of models - that is, theories - for representing linguistic knowledge,

and the second shows how these can be used in computer applications of the understanding process.

The coverage of linguistic theories is impressive, with presentation, explanation, and bibliographic information on transformational, case, systemic, unificational, and Melcukian lexical grammars, followed by a battery of logics, a bouquet of semantic networks, and a quiver of procedural semantic representations. A long section on pragmatic aspects of communication (often called "discourse analysis"), including theme-rheme organization, Gricean implicatures and speech-act theory rounds off the "theories" volume.

The second - "doing it on the computer" - volume begins with parsing systems - from morphological analysis via transition networks and lexicon-driven analyzers, to Sabah's own ANDI rig which includes semantic elements - and continues with a useful chapter on error-correction strategies and how they relate to man-machine dialog systems.

This volume covers discourse models - how programs can be built to handle the problems of forward-looking pronouns, inferences, and conceptual information encoded in texts - as well as dialogue structures. The volume ends with a discussion of text generation, from concepts via lexicalization to the rhetorical organization of the surface syntax.

As the author admits, the book is largely inspired by Terry Winograd's *"Language As A Cognitive Process"* but goes much further, grounded as it is in the belief that "a simple syntactic analysis is not a prior necessity in an automatic language processing program ... It is better to aim at building an internal representation carrying meaning elements used by later reasoning processes."

After introducing each system, theory, or model, and illustrating it with French examples, therefore, Sabah takes care to show its precise limitations when faced with the need to integrate it with other modules of the understanding process into a unified procedural whole.

Thanks to its didactic, even encyclopedic design, you can pick and choose subject areas or theories at will. Although it deals with product-independent processes - cognitive modelling could be used in anything from natural language interfaces for databases through machine translation to the fabulous voicewriter - Sabah reminds us at the end of each chapter of the language-industrial fallout that research in different areas could bring.

Even seemingly unworldly textbooks like this one have one eye on the products market these days.

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TRAITEMENT DE TEXTE EN FRANCAIS, audio/copy. IBM PC compatible, WordStar/WordPerfect, etc. Modem. Longue experience. Myriam Boydon, +44 (1) 876 7707.

SERVICES OFFERED - INTERPRETERS

SUSCENKO, Mrs J., LesL, MA, MIL, MTG, PGDip in Conference Interpreting. Russian/French-English, English-Russian, experienced simultaneous, consecutive and adhoc interpreter. 36 Perryn Road, Acton, London, W3, UK. Tel: +44 (01) 743 8886.

SERVICES OFFERED - TRANSLATION COMPANIES

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English, German, French, Italian, Portuguese into Spanish. Wordprocessing, Fax. Apartado 1073, 24080 LEON, SPAIN. Tel/Fax: +34 (87) 202 804

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Rest of Europe
Eurolux Computers
11 rue de Wormeldange
L-6180 GONDRANGE
G.D. Luxembourg
Tel: (+352) 789 443

NOVEMBER 1989

1-4 — MACUSER SHOW

London, UK. Organized by Montbuild Ltd and sponsored by MacUser magazine, this year's event will take place at Olympia's National Hall. Contact Steve Corrick, Montbuild Ltd, 11 Manchester Square, London W1M 5AB, UK. Tel: +44 (1) 486 1951, Fax: +44 (1) 935 1421.

2-4 — MACWORLD EXPO '89

Sydney, Australia. Organized by The Interface Group, 300 First Ave., Needham, MA 02194 USA. Tel: +1 (617) 449 6600.

3-5 — INTERNATIONAL CONFERENCE OF THE JAPANESE ASSOCIATION OF LANGUAGE TEACHERS

Kyoto, Japan. Info: JALT Central Office, Kyoto English Center, Sumitomo Seimei Building 8F, Shijo Karasuma Nishiru, Shimogyo-ku, Kyoto 600, Japan.

5-10 — HYPERTEXT '89/SIGDOC '89

Pittsburgh Hilton & Towers, PA. First 3 days devoted to Hypeertext (systems, applications, issues), last 3 to SIGDOC.

Sponsored by ACM. Hypeertext info:

Elise Yoder +1 (412) 327 8181. SIGDOC info: +1 (412) 281 5959.

7-9 — ONLINE '89 MEETING

Chicago, Illinois. 8-9 — MACHINE TRANSLATION FAIR CT '89

Tokyo, Japan. Sponsored by the Japanese Translation Association, Nihon Keizai Shinbun and Nihon Keizai sha, Inc. Held at the Keio Plaza Hotel, with the theme "Practical Applications of Machine Translation". Contact the Japanese Translation Association, 3rd Floor Sakado

Building, Akasaka 4-8-14, Minato-ku, Tokyo, Japan. +81 (3) 5556 0724.

8-10 — SALON INTERPRESSE

CNIT, Paris. Conference for all those concerned with the production of printed matter. Topics will be covered under the main headings of production, documentation, publicity, distribution, direct marketing, management and diversification.

Info: 16 rue Guillaume Tell, 75017 Paris, France. Tel: +33 (1) 66 00 05. Fax: +33 (1) 66 00 05.

8-11 — INTERNATIONAL CONFERENCE ON COMPUTER PROCESSING OF CHINESE AND ORIENTAL LANGUAGES

Beijing, China. Organized by the Chinese Language Computer Society and the Chinese Information Processing Society. Call for papers.

Info: Dr Bai Jianwei, Husan Association for Science and Technology, 1 Dong Feng Road, Changsha, Hunan, China.

8-12 — EXPOLINGUA

Frankfurt, Germany. Second Annual Language Fair held at the Frankfurt Messgelände. Info: International Where and How, Postfach 2464, D-5300 Bonn 1, F.R.G.

13-15 — UIST

Williamsburg, VA. Symposium on user interface software and technology. Info: John Sibert +1 (202) 994 4953

13-17 — COMDEX FALL '89

Las Vegas, Nevada. The 11th time. Organizers: The Interface Group, 300 First Ave., Needham, MA 02194 USA. Tel: +1 (617) 449 6600, ext: 4023, Fax: +1 (617) 449 6953.

15-17 — COMPUTERS IN EDUCATION

Montréal, Canada. Presented by

CYBERLEX

WE'RE TALKING PEDAL POWER

In this online communications special, Electric Word pays tribute to cycle couriers, known to some as the inheritors of the Pony Express pioneer spirit – and to London cabbies as "those bleedin' kamikaze psycho-lists."

Delivering documents hand-to-hand through hostile territory – nine have died in London so far this year – these haemoglobin-driven uploaders and downloaders, mostly in their twenties, have nine to 12 months before burnout hits. Average pay is £2.50 a trip. If you're quick and know London, you can do 25 to 30 dockets a day. The real pros do up to 40.

In addition to spawning their own magazine (Moving Target), the London cycle couriers' sub-culture, based in the heart of Soho, has produced a new vocabulary. Here is an excerpt taken from London's *Mail on Sunday*:

LINGO

CC - Cycle Courier.

Going for the Gap - taking a space of an inch or less either side of your handle bars.

Burnout - mental exhaustion from dicing with death.

Bandit Mask - cotton face mask.

Velocoped - speed merchant.

Chicken Run - Park Lane to Hyde Park Corner. If you've been there, you'll know why.

An SE1 for a W/R - a ride to South East London to wait for a package and return.

A Tebbit - a pushbike.

STYLE

Handle bars - saw off the ends for extra-maneuverability through tight gaps.

Gears - cut down from 18 to 10, and make ratios closer for less changing. Only use five or six low gears in town.

Wheels - buy custom-built wheels, using top quality rim, spoke and hub.

Carrier racks - remove them. Only use shoulders.

McGill University, this is their 7th annual. Contact Suzanne Cabana, Coordinator, GEMS Conference and Consulting Services, 4260

Girouard, Montréal, Québec H4A 3C9, Canada.

16-17 — ASLIB'S TRANSLATING AND THE COMPUTER CONFERENCE

London, England. Organized by ASLIB (Association for Information Management), and held this year at the Sedgwick Centre. Contact Sherry Jespersen, ASLIB, Information House, 26-27 Boswell St., London WC1N 3JF, UK. Tel: +44 (1) 430 2671, Fax: +44 (1) 430 0514.

17-22 — AMERICAN COUNCIL ON THE TEACHING OF FOREIGN LANGUAGES (ACTFL) ANNUAL MEETING.

Boston, MA. Info: +1 (914) 963 8830

22-23 — TERMINOLOGY IN ADVANCED MICRO-COMPUTER APPLICATIONS

Vienna, Austria. Organized by TermNet with support from Info-Term, the IITR and the CNRS/CTN.

Contact: TermNet, P.O. Box 130, 1021 Vienna, Austria.

23-24 — INTERNATIONAL ASSOCIATION FOR LANGUAGE AND BUSINESS

Nottingham, UK. 15th Annual Conference. Theme: Corporate Language Policy. Languages: English, French and German. Info: Praetorius Limited, 5 East Circus Street, Nottingham NG1 5AH, UK. Tel: +44 (602) 411 087, Fax: +44 (602) 470 318.

30-1 — EUROPEAN SATELLITE COMMUNICATIONS '89

CONFERENCE London. Review of issues raised by the EC's Green Paper on the future of satellite

communications in Europe. Info: Vivienne Huang, +44 (1) 868 4466

DECEMBER 1989

1-3 — SYMPOSIUM ON THE TRAINING OF INSTRUCTORS OF TRANSLATION AND INTERPRETATION CONFERENCE

Monterey, California. Organized by and held at the Monterey Institute of International Studies, Division of Translation and Interpretation, Monterey, CA 93940. Tel: +1 (408) 647 4185.

3-6 — COMPUTER GRAPHICS FOR DESIGN

New York, New York. Conference and exhibition of new tools for computer designing. Contact Barbara Jeffe, Tel: +1 (914) 741 2850.

12-14 — ONLINE INFORMATION

London, UK. 13th international meeting and exhibition on electronic infor-

mation products and services. This year's themes include hypertext, multimedia, information analysis, as well as real-time transactional and reference systems. Organized by Learned Information Ltd., Woodside, Hinksey Hill, Oxford, OX1 5AU, UK. Tel: +44 (865) 730 275.

T.B.A. MOSCOW INTERNATIONAL SEMINAR ON MACHINE TRANSLATION

Moscow, USSR. Organized by the USSR Center for Translation of Scientific Technical Literature and Documentation. Topics will include Machine and Machine-Aided Translation; Automatic Dictionaries and Terminological Data Banks; Software and Technology of MT and MAT; Automation of Translation and Automatic Text Processing. Call for papers in Russian, English, French or German. Info: Compu-



ter and Translation '89 Secretariat, The USSR Center for Translation, Krzhanovskogo 14, Block 1, Moscow 117218, USSR. Tel: +7 (124) 70 24.

14-16 — COMPUTERS IN THE CITY
The Barbican, London. Exhibition and conference, focusing on cost effective technology for the 1990s for those in securities and investment banking. Info: Blenheim Online, Blenheim House, Ash Hill Drive, Pinner, Mdx, UK. Tel: +44 (1) 868 4466. Fax: +44 (1) 868 9933.

JANUARY 1990

T.B.A. — 2001: TECHNOLOGY AND LANGUAGE
CALICO Satellite Teleconference, co-sponsored by the National Foreign Language Center. Contact CALICO, 3078 JKHB, Brigham Young Univ., Provo, UT 84602, USA. Tel: +1 (801) 378 7079.

T.B.A. — COMMUNICATION INTERACTIVE 1990
Paris, France. Theme: Instruments de communication évolués, hypertextes, hypermédias... Organized by Softin-communication and the Paragraphe group from the Université Paris VIII. Contact: Groupe Paragraphe, L.I.T., Université Paris VIII - Vincennes, 2 rue de la Liberté, 93526 - St. Denis Cedex 02, France. Tel: +33 (1) 48 29 01 91.

T.B.A. — MACWORLD EXPO
San Francisco, California. Organized by Mitch Hall Associates, P.O. Box 860, Westwood, MA 02090, USA. Tel: +1 (617) 361 8000.
23-25 — MACWORLD UK
London, England. Held at the Business Design Centre and organized by ITP Exhibition Services Ltd., 59 Long-

ley Lane, Northenden, Manchester M22 4JD, UK. Tel: +44 (61) 998 0643, Fax: +44 (1) 946 0570.

FEBRUARY 1990

14-19 — EXPO-LANGUES
Paris, France. Held at the Porte de Versailles. Contact: OIP/CLC, 62 rue de Miromesnil, 75008 Paris, France. Tel: +33 (1) 45 62 84 58.
18-22 — ELECTRONIC SYSTEMS PRINTING CONFERENCE
San Diego, California. Conference and exhibition on digital systems. Contact Patrice Dunn, Tel: +1 (619) 758 9460.

22-25 — TECHNOLOGY ENTERTAINMENT DESIGN
Monterey, CA. Conference exploring the convergence of technology, entertainment and design, and their cumulative effect on communications, education and business. Info: TED2, 1621 West 25th Street, Suite 281, San Pedro CA 90732, USA. Tel: +1 (213) 831 4225. Fax: +1 (213) 831 0198

26-3 — TECHDOC WINTER CONFERENCE
Santa Monica, CA. Major event for the technical publishing industry, organised by the Graphic Communications Association (GCA). Info: Tel: +1 (703) 841 8160
27-3 — MICROSOFT CD-ROM CONFERENCE
San Francisco Hilton, CA. Info: +1 (203) 352 8224

MARCH 1990

5-9 — SEYBOLD SEMINARS
San Francisco, California. More wisdom from the publishing gurus. Themes this time: interactive page layout, digital graphics and electronic printers for publishing. Contact

Seybold Seminars, 6922 Wildlife Road, P O Box 578, Malibu, CA 90265, USA. Tel: +1 (213) 457 5850, Fax: +1 (213) 457 4704.
19-23 — CALICO SYMPOSIUM
Baltimore, Maryland. The CALICO annual international conference. Contact CALICO, 3078 JKHB, Brigham Young Univ., Provo, Utah 84602, USA. Tel: +1 (801) 378 7079.
21-28 — CeBIT
Hannover, West Germany. The mega European trade show for office, information and telecommunications technology. Organized by the very efficient Deutsche Messe AG, Messegelände, 3000 Hannover 82, FRG. Tel: +49 (511) 89-0, Fax: +49 (511) 89-326 26.

APRIL 1990

5-7 — 9TH ANNUAL EMU CONFERENCE ON LANGUAGES AND COMMUNICATION FOR WORLD BUSINESS AND THE PROFESSIONS
Ypsilanti, MI. Areas to be covered are languages and culture and international business and communication. Call for papers/workshop proposals. Info: World College, 307 Goodison Hall, Eastern Michigan University, Ypsilanti, MI 48197, USA. Tel: +1 (313) 487 2412

15-21 — INTERNATIONAL ASSOCIATION OF TEACHERS OF ENGLISH AS A FOREIGN LANGUAGE
24TH INTERNATIONAL CONFERENCE. Dublin, Ireland. Info: IATEFL, 3 Kingsdown Chambers, Tankerton, Whitstable, Kent CT5 2DJ, UK.
15-21 — INTERNATIONAL ASSOCIATION

OF APPLIED LINGUISTICS 14TH WORLD CONFERENCE.
Thessaloniki, Greece. Info: Stathis Efstathiadis, PO Box 52, Aristotle University, 54006 Thessaloniki, Greece.
23-26 — SPEECH TECH '90
New York, New York. Annual conference and exhibition for the voice processing industry, venue to be announced. Organized by Media Dimensions Inc., publishers of Speech Technology magazine and the International Voice Systems Review. Contact Media Dimensions, 42 East 23rd St., New York, NY 10010, USA. Tel: +1 (212) 533 7481, Fax: +1 (212) 475 1209.
23-27 — EURIT '90
Herning, Denmark. A European Conference on Technology and Education organized by the Danish Centre for Education and Information Technology. Contact EURIT 90, CPI, 72 Vesterbrogade, 1620 Copenhagen V, Denmark. Tel: +45 (31) 23 71 11, Fax: 23 71 53.
23-28 — COMDEX/Europe at SICOB
Paris-Nord Villipinte Fairgrounds. COMDEX, the largest computer trade show in North America, joins forces with SICOB, one of Europe's biggest computer and office technology events. Conferences and seminars. Produced by the Interface Group Inc. Info: David Kammer. Tel: +1 (617) 449 6600

25-29 — MONDOLINGUA
Palexpo, Geneva. International fair for languages and cultures. Focal point of the Swiss language market, incorporating an international fair for books and press. Info: 29, rue de Bourg, CH-1002 Lausanne. Tel: +41 (21) 312 10 88. Fax:

+41 (21) 20 50 59
26-28 — INSTITUTE OF TRANSLATING AND INTERPRETING 4TH ANNUAL CONFERENCE
London. Now one of the major conferences in Europe for translators and interpreters. Info: Roger Fletcher, ITI, 318a Finchley Rd, London NW3 5HT, UK.

MAY 1990

1-3 — NATIONAL ONLINE '90
New York, NY.

JUNE 1990

3-6 — COMDEX SPRING '90
Atlanta, Georgia. Contact The Interface Group, Inc., 300 First Avenue, Needham, MA 02194, USA. Tel: +1 (617) 449 6600, ext: 4023.
7-9 — EUROINFO '90
Rome. Pan-European event covering traditional and innovative components in the electronic information community, the result of a collaboration between Learned Information and SEAT (a division of the Italian holding company for telecommunications). Info: Learned Information, Woodside, Hinksey Hill, Oxford OX1 5AU, UK. Tel: +44 (865) 730 275
OR Giorgio Caniglia, SEAT, Via Aurelio Saffi, 10138 Torino, Italia. Tel: +39 (11) 333 024 57.

14-17 — MACWORLD EXPO ASIA '90
Singapore. The second ever MacWorld Expo Asia. Info: Hubert Wisse, Europe Office, Nieuwe Plein 3, 6811 KN Arnhem, The Netherlands. Tel: +31 (85) 431 523

AUGUST 1990

6-9 — FIT WORLD CONGRESS

Belgrade, Yugoslavia. The 12th meeting of the International Federation of Translators. Theme: Translation, a creative profession. Contact the FIT Congress Secretariat, Kicevska 9, 11000 Belgrade, Yugoslavia.
20-25 — COLING '90
Helsinki, Finland. The 13th international conference on computational linguistics, organized by and held at the University of Helsinki. Contact Rlitta Ojanen, Kaleva Travel Agency, Congress Services, Box 312, 00121 Helsinki, Finland. Tel: +358 (0) 602 711, Fax: +358 (0) 629 019.
27-31 — LINGUISTICS AND PHONETICS: PERSPECTIVES AND APPLICATIONS
Prague, Czechoslovakia. For information, contact LP '90, Department of Linguistics and Phonetics, Philosophical Faculty, Charles University, nam. Krasnoarmejcu 2, 11638 Prague 1, Czechoslovakia.

OCTOBER 1990

4-8 — COMDEX/Europe at SICOB
Paris Nord Villipinte Fairgrounds. Fall version of the COMDEX/SICOB collaboration, uniting North America's largest computer trade show with one of Europe's biggest computer and office technology events. Conferences and seminars. Produced by the Interface Group Inc. Info: David Kammer. Tel: +1 (617) 449 6600
COMPUTERS AND THE HUMANITIES
Siegen University, Germany - no more details available at time of going to press.

Since Dr. WriteStuff started his column last issue, letters from perplexed Electric Word readers have been pouring in. The Doc doesn't mind, though. His motto is: "A friend in need is a friend indeed." And what better circle of friends than the worldwide community of wordworkers?

Here's a selection of the problems that you've laid at his door since last issue.

MacHEBREW?

Dear Dr. WriteStuff,

I'm looking for a Hebrew wordprocessing program for the Macintosh. For the PC there's plenty, like Dragonfly's NotaBene and Gamma's Multilingual Scholar. But for the Mac, forget it. Tell me I'm wrong.

Lionel White, Great Neck, NY, USA

Dr. WriteStuff Replies: Yes, you're wrong. The most highly regarded Hebrew up for the Mac is RavKtav - that's "MultiWrite" in Hebrew - which comes with its own Hebrew operating system. Distributors: Micro-Macro, P.O. Box 5488, Holon, Israel. If you want just a basic wordprocessor, try the Hebrew version of MacWrite.

Details about the whole range of Hebrew products for the Mac can be had from Yeda Computers, Ygal Alon 127, Tel Aviv, Israel. Tel: +972 (3) 285 869.



MAX KISMAN

THERE'S THIS WORDWORKER GOES TO THE DOCTOR'S...

Dear Dr. WriteStuff,

Some of the people in my office are always complaining about how awful they feel after sitting in front of a computer screen all day every day. And some of them even say they've heard worse - like computer screens cause infertility or even cancer.

I work a lot at the computer, and have not had any problems yet, but I'd also like to reach a respectable old age. What are your ideas on the matter?

Wendy Ford, Middlesbrough, Cleveland, UK

Dr. WriteStuff Replies: Opinions on the effects of computer screens, or Visual Display Units (VDUs), on our health vary widely.

Some scientists believe that the non-ionizing radiation emitted by VDUs is

DR. WRITESTUFF REPLIES

medically harmful. A recent study by the Kaiser Permanent Medical Care program found that the chance of miscarriage in women working more than 20 hours a week in front of a VDU was twice as high as in other women.

One US local authority, Suffolk County (New York State), has already restricted VDU use at work. A byelaw imposes a 15-minute break every three hours for employees who use a VDU for more than 26 hours a week - a measure also in force in the Electric Word office.

On the other hand, the commonly held medical view is less alarmist. Most doctors believe that the adverse health effects of VDUs are at worst negligible. Television sets don't cause us any harm, and VDUs are just television sets displaying a rather monotonous show.

All the same, although no link has yet been established between VDUs and any specific illnesses, one thing's for sure: they won't do your eyesight any good. One reason for this is that when you're concentrating on work onscreen, you tend to blink less often - which cause dry eyes, discomfort and irritation.

To counteract these effects, my colleague Dr. Ernest Loewenstein recently instructed PC Computing readers using VDUs to "close their eyes fully when blinking, keep them closed long enough to moisten the eyes and wash debris away, and blink at least every three seconds." His recommendations are obtainable in a free booklet: "VDT Users: Improve Comfort with the Blink of an Eye," obtainable from Polymer Technology, 100 Research Drive, Wilmington, MA 01887, USA.

You might also relieve eye discomfort by making sure there's the right level of ambient light in your office - too much or too little will affect your sight.

And, for allround physical wellbeing, make sure you're office chair is well-adjusted.

ERRANT HEADERS AND FOOTERS

Dear Dr. WriteStuff,

I recently sent a floppy disk with a technical manual in Ventura format to a branch office in Holland. I included all the miscellaneous Ventura files as well as the external documents in WordPerfect format. When they went to print it, everything went well, except the headers and footers were lost. I can't figure out why. Can you?

Sean O'Flaugherty, Dublin, Ireland

Dr. WriteStuff Replies: Well, laddie, your mates in the Low Countries must have been using the Dutch version of Ventura Publisher. While it wouldn't have had any problem with the tags you created in the Style Sheets, the default tags like those for the headers and footers would not be recognized, because in the Dutch version of

VP, those tags' names have also been translated.

Unfortunately, there's no easy way round this problem. Your colleagues there will have to search and replace all occurrences of the Z_footer and Z_header tags with the localized variant.

IS MT AN EMPTY IDEA?

Dear Dr. WriteStuff,

I read so many stories in Electric Word about machine translation, you'd almost think it was a proven technology that made economic sense. But why then aren't computerized translation companies go-go stocks? Why, for example, did Automated Language Processing Systems stop selling machine translation systems and buy up translation agencies instead? Is machine translation economically viable?

Mohammed Azwar, Lahore, Pakistan

Dr. WriteStuff replies: Mohammed, your question is what my youngest daughter would call an "all-day-sucker." I'll keep it short, though.

Since human translators are expensive and talk back, many companies who need a lot of translation done are seriously investigating whether some of this work can be automated, at least some of their more repetitive material.

Early MT systems were designed "top down," as engineers say. They were based on complex models of linguistic theory. This proved to be a totally overwhelming approach, the systems failed to deliver even moderately satisfying results, and the designers retreated with their tails between their legs.

After that, commercial MTers decided that an approach tempered with more realism would be appropriate. They started designing systems which lacked some linguistic refinements but could be trained to churn out particular types of text - repetitive, restricted domain - with acceptable results.

So, Mohammed, companies like Tovna, Logos, Fujitsu, and Siemens will be happy to sell you a machine translation system. But the reason they're not getting stinking rich doing so is that only a small part of all the text currently being translated by humans is suitable for translation by machine. But the translation market as a whole is so enormous that the temptation is too great for companies to resist having a go at it.

Doc WriteStuff's informants say that Automated Language Processing System's decision to bag MT reflected premature enthusiasm for the field, which put the company in financial problems.

On the other hand, Mohammed, maybe ALPNET's got it right: first you get translators translating, then you get computers to help them translate, then you get the translators to help the computers translate ... You know what I'm saying?

Take care now, and - to all our Southern Hemisphere readers - watch out for Mr. Sun this time of year. With Summer beginning, you're better off with VDU fatigue than sunstroke.

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A subscription to Electric Word is the perfect gift for all wordworkers.

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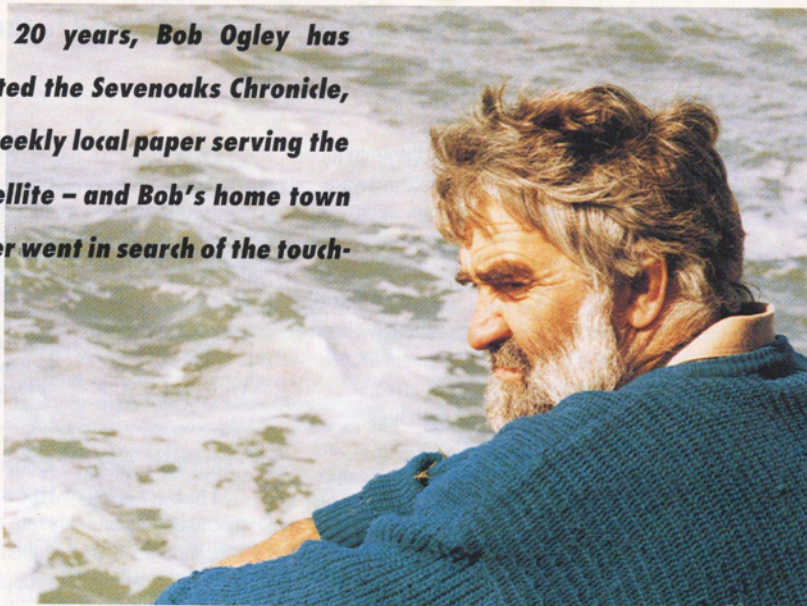
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Bob Ogley

*For 20 years, Bob Ogley has edited the **Sevenoaks Chronicle**, a weekly local paper serving the archetypal London commuter satellite – and Bob's home town – of Sevenoaks, Kent. Simon Barker went in search of the touchstone of the Chronicle's success.*



"Community" is Bob Ogley's mantra. He's an amenable, bearded town crier of print. "I have the responsibility of dealing with the community. And in a journalistic sense, I do everything they do."

Twenty years of doing just that must be a touch wearing. What could be keeping him? "The circulation is 13,500," says Bob proudly. "And if I tell you that the population of Sevenoaks is 17,000, you can see that our percentage per household is very high."

"There isn't another town in Kent the same size which supports its own local paper. Therefore we're able to report more community topics that we might call trivia, but which for the people involved are very important." Hopefully, there's always something for everyone.

Bob has a rule of thumb regarding why people buy the paper. "Basically, it's bought out of habit. People have always had a local paper and always will. It's like ordering a pint of milk," he says.

Unusually for a British local paper, the Chronicle is a broadsheet, having deferred from adopting the popular tabloid format.

NO HAWKERS, NO TABLOIDS

"Sevenoaks isn't a tabloid town," says Bob. "People read the Daily Telegraph or the Times (both Conservative broadsheets), and so we need to be the same size ourselves. It's a little irritating – journalists themselves like the tabloid format because you can use big pictures and headlines, it's easy to do a page, and it looks good. But I think our formula is about right for Sevenoaks."

Given the need to cover the "trivia" central to the readers' lives, there is no formula for news content. However, Bob has firm moral criteria: "We have to be accurate, and if we offend, we offend in a constructive way. We also have to be informative and entertaining, covering community events as much as hard news."

Attention to public affairs is essential. The Conservative party has a large majority on the District Council. "Since there isn't a big opposition politically, we try to give it as much prominence as possible. But the alternative side to community life – perhaps the more mundane side – the fêtes, fairs and flower shows, must also be represented." The readership wants to read about itself, after all.

The weekly publication cycle kicks off on Friday, when Bob meets the admen. Page size and advertising features are run through, and a pagination drawn up determining when pages must be completed by.

"Advertising is crucial, dictating paper size and format. A ratio of 60% advertising to 40% news has

to be achieved, so the more ads, the larger the paper. We could fill it up with ads, but we don't want to. We're not a freesheet, we're a newspaper."

Monday heralds the editorial conference. "Here it's decided what should be the lead story, what should go on the front page, and what photographs we have or need to take."

During the week, pages are completed as scheduled, and the paper is ready to be sent to print ("put to bed" in print speak) by Wednesday afternoon. On Thursday, it is printed to be on sale by the afternoon. "I get a kick every week out of seeing the paper published. When I sign the front page away I feel, and always have felt, quite a glow."

SIX-OAK SHOCKER STUNS SEVENOAKS CITIZENS

What makes a headline? "Some stories are obvious: a natural disaster or tragedy. Scandal is news, but rumor we discount completely. We also have to live with the people we write about. News is what will interest or titillate or amuse."

Bob refers with newspaperman's glee to the hurricane of 16 October 1987, when southern England was devastated by 160 kph winds. Nothing like it had been seen since Samuel Pepys recorded similar freak storms in his diary.

"It will be talked about by future generations as the time when nature's fury hurled itself at Sevenoaks and in four wild hours completely changed the face of the landscape," says Bob in the poetry of a pro. Six of the town's seven oak trees, which had stood for centuries fell. Power lines were down, telephone poles ripped out, water and gas supplies cut, and 1,400 km of roads blocked by fallen trees.

No milk, no papers, no power, no petrol, no communications, no trains, no traffic, outlying villages cut off for weeks. In spite of this, Bob and his team published an edition, with a circulation of 60,000. "And there isn't a newspaper of October 23 1987 available to this day – except those I've hidden."

Bob wrote a book about the hurricane, which he

published himself after being rejected by a local firm. It became a bestseller (with profits going to the Hurricane Fund), and Bob then set up his own company, which has another four books in the pipeline.

HOT METAL DIE-HARD

Being part of a larger publishing group with print facilities at nearby Tunbridge Wells enabled the Chronicle to become one of the first UK weeklies to reap the benefits of computerized typesetting: improving reproduction and picture quality, and easier correction.

A Tandy editorial system is currently being tested. Stories are entered by means of a Tandy 200 terminal and are collated under subject matter with a Tandy 1000. A 1000 is then used for text subbing and page make-up. Finished pages are then sent "down the line" to the printers.

"Now it's merely a case of cutting up paper. And because of this, the whole process is faster – and we don't have the time to show the consideration and care we would like."

The Sevenoaks office, however, is hardly hightech, and Bob himself seems rather uninvolved with the new technology. "Ask my deputy editor," seems to be the stock reply. "He actually plans all the pages and what should go in them – all the copy-pasting."

Bob sums up the qualities needed to be a successful local editor. "An editor should be capable of doing everything his staff can do: obituaries and WIs (Women's Institute meetings), meeting and talking to people, writing editorials, designing and subbing, liaising with printers and page make-up. You have to be cynical and have a passion for the community – but not too much because you have to sit back and be critical sometimes."

The other "must" he has in abundance is enthusiasm. "You have to be able to work 24 hours a day, and I am not exaggerating. People ring me before breakfast. But I like it, and you've got to be prepared to put up with that."

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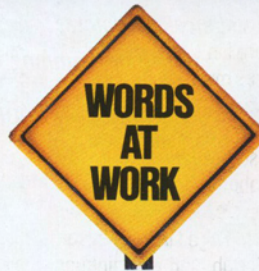
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